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# USSR Report

AGRICULTURE

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# USSR REPORT

## AGRICULTURE

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## MAJOR CROP PROGRESS AND WEATHER REPORTING

### DEVELOPMENT OF BETTER AGROTECHNOLOGY FOR EASTERN SIBERIA

Omsk ZEMLYA SIBIRSKAYA DAL'NEVOSTOCHNAYA in Russian No 10, Oct 84 pp 2-4

[Article by Yu. I. Shaposhnikov, director of the Main Production Administration of the Eastern Siberian Regions of RSFSR MSKh [Ministry of Agriculture]: "Reserves of Siberian Fields"]

[Text] Over 2 years separate us from the May 1982 Plenum of the CPSU Central Committee, which approved the country's Food Program, developed in accordance with the decisions of the 26th party congress. A weighty contribution to its fulfillment must be made by the kolkhozes and sovkhoses of Eastern Siberia, which have over 23.3 million hectares of agricultural lands, including 9.6 million hectares of arable land.

The CPSU Central Committee and Soviet government are constantly taking energetic measures to improve this important economic region of the country and especially to accelerate the development of its agriculture. As we know, in March 1982 the CPSU Central Committee and USSR Council of Ministers passed a resolution, "On the Comprehensive Development of Agriculture in Siberia, the Far East and Kurgan Oblast." What has been done during this time? What are the problems and goals of the near future? What are the possibilities and reserves of agriculture in this region?

In recent years the material-technical base of kolkhozes and sovkhoses has become considerably stronger. In 1983 capital-labor ratio per 100 hectares of agricultural lands reached 27,600 rubles as compared to 10,600 rubles in 1970. The capital-labor ratio per worker increased to 13,600 rubles in 1983 as compared to 4,700 rubles in 1970.

Government and kolkhoz resources totalling 2.1 billion rubles of capital investments have been directed into carrying out the program for improving agriculture in the zone during the past 3 years for the entire complex of operations--this is 210 million rubles more than in 3 years of the 10th Five-Year Plan. Technical equipment supplied to kolkhozes and sovkhoses has been replaced considerably. Supplies of mineral fertilizer reached 330,000 tons of active substance in 1983 as compared to 252,000 tons in 1980 and 231,000 tons in 1975.

In recent years there has been a significant expansion in the work volume to transform the village. Compared to 1975 average monthly wages for kolkhoz farmers increased by 40 percent; for sovkhoz workers--by 22 percent.

However, all of this taken together still has not yielded the expected results. Last year 310 enterprises in the zone, or 28 percent, finished their work with losses. In Krasnoyarsk Kray 21 percent of enterprises were unprofitable, in Irkutsk Oblast--45 percent, in Chita Oblast--27 percent, in Buryat ASSR--22 percent and in Tuva ASSR--26 percent. This occurred despite the extensive aid rendered to kolkhozes and sovkhozes by the state after the May 1982 Plenum of the CPSU Central Committee.

Of the many factors that determine indicators in agriculture, the following are singled out--constant concern about the growth of soil fertility and about expanded reproduction of soil fertility; immediate solution of social questions in the village; further improvement of production management and the introduction of effective forms and principles of labor organization. All of these problems require comprehensive solutions.

The key factors in strengthening the economy and the main sources for increasing the income of kolkhozes and sovkhozes include improving production, increasing crop and livestock productivity, and unconditionally fulfilling established goals related to delivering products to the state. The wise use of land and the practical assimilation of scientifically-based systems of farming in every enterprise--these are the bases for solving the tasks that stand before the zone.

What could be obtained from the land in Siberia if all factors involved in the harvest could be brought into action! This includes good Siberian grain yielding 20 quintals per hectare. Over 120 kolkhozes and sovkhozes achieve this type of yield constantly. Among them are Nazarovskiy Sovkhoz, Sovkhoz-Technical School imeni V. I. Lenin and N. K. Krupskaya of Krasnoyarsk Kray, Kolkhoz imeni V. I. Lenin of Alarskiy Rayon, Novogromovskiy Sovkhoz of Irkutsk Oblast, Zavety Lenina Kolkhoz of Akshinskiy Rayon and Pobeda Kolkhoz of Uletovskiy Rayon in Chita Oblast, Kolkhoz imeni Lenin and Kommunism Kolkhoz of Mukhorshibirskiy Rayon, Verkhne-Taletskiy Sovkhoz of Buryat ASSR and many others. Many kolkhozes and sovkhozes have high indicators with regard to the production of potatoes, feed crops and other crops. At the same time, 10 percent of the total number of enterprises produce less than 6 quintals of grain per hectare.

At the present time, approaches have been found and theoretically justified for all territories in the zone and for their specific natural and economic conditions with regard to more effective utilization of land, a growth in productivity of all agricultural lands and increased yield of all crops. This includes the introduction of correct crop rotations, an efficient structure of sowing area, a system for using organic and mineral fertilizers, reclamation of acidic soils, protecting soil from wind and water erosion, a system for counteracting weeds, pests and diseases, seed farming and variety alternation and a great deal more that involves scientifically-based farming systems that have been developed and are being introduced in the zone.

It should be noted that similar scientific systems of farming existed before. Unfortunately, the degree to which they were assimilated and thus their practical effect were very low and the scientific bases for production management did not always become law for the enterprise. Now, in order to transform developed scientific systems into an actual production force it is necessary to create a precise and clear program of practical operations on the basis of a detailed analysis of all aspects of crop and animal productivity under specific conditions. This work is being carried out in the zone. But a great deal of formalism is still being tolerated. A serious analysis of the situation and the determination of difficulties are often replaced by a rewriting of scientific bases worked out in general terms without any sort of relationship to the specific conditions of the field or crop rotation. In every RAPO this work must be especially controlled.

In agriculture land is the main production resource. It differs from other production means in that with proper use it does not wear out--on the contrary, its value and productivity increase. But this occurs only when there is a concerned attitude toward it. Science and practice are both familiar with dependable methods of increasing soil fertility.

Now it is clear to all of us that we cannot plan and achieve large and stable yield of grains and other crops by relying only on the use of natural soil fertility. Of course it is simpler to increase productivity by increasing the application of mineral fertilizer, but supplies are limited. Under such conditions it is especially important to achieve a sharp increase in the application of organic fertilizer this year and in 1984 and to increase the effectiveness and also improve the utilization of existing resources of mineral fertilizers.

Things are being done properly in enterprises and rayons which are organizing fertility detachments and permanent links which will work on preparing and knowledgeably applying organic fertilizers on fields on a year-round basis. Today we can cite many examples of good and effective work with organic and mineral fertilizers. In Sovkhoz-Technical School imeni V. I. Lenin and N. K. Krupskaya of Krasnoyarsk Kray organic fertilizer is used in the form of compost (7.7 tons per hectare of arable land). Of the total volume of mineral fertilizer 80-90 percent is applied locally. As a result of the effective use of fertilizer the productivity of grains during the period 1981-1983 equalled over 20 quintals per hectare. This is a great achievement by the entire collective of the enterprise and especially by the director, I. A. Savkin, and the senior agronomist, A. M. Kulikov.

Work with organic fertilizer and land is no less effective in Kanskiy Sovkhoz of Krasnoyarsk Kray, Kommunism Kolkhoz of Mukhorshibirskiy Rayon of Buryat ASSR, Mir Kolkhoz of Khilokskiy Rayon of Chita Oblast and Kolkhoz imeni V. I. Lenin of Alarskiy Rayon in Irkutsk Oblast, where grain yield equalled over 31 quintals per hectare.

In Nazarovskiy Sovkhoz of Krasnoyarsk Kray organic fertilizer is used only on fallow fields in large doses, which enables farmers to produce large harvests on these lands over a period of 4-5 years. All granulated mineral

fertilizers are applied simultaneously with the sowing of grains and other agricultural crops. As a result the productivity of grain crops equalled 41.8 quintals per hectare in 1983. In the region as a whole the use of organic fertilizer is increasing. Whereas during the Ninth Five-Year Plan about 1 million tons of organic fertilizer was applied per year, in 1983 15.8 million tons were applied.

But not all kolkhozes and sovkhoses in the zone by far operate in this manner. Some directors treat manure as a side-product or, more simply stated, as waste. In these enterprises there is an absence not only of manure storehouses but also of platforms for its storage and composting with peat and other components. Manure is often removed from farms in small batches, mixed with metal and building materials, is not put in storage piles on time and becomes overgrown with weeds. Under such conditions we cannot speak about the correct use of organic fertilizer in accordance with the requirements of a scientifically-based farming system.

Today we have a right to complain about the absence of the necessary demandingness and organizational work in this direction on the part of directors of agricultural organs in the kray, oblasts and ASSR's and of sovkhoses and kolkhozes.

Goals involving improving soil fertility are multifaceted and responsible. They must be dealt with without delay because of the ongoing process of decreased humus content in the soil. For this reason, specific measures must be taken to accumulate, preserve and efficiently utilize all organic fertilizers. Moreover, we are speaking not only about manure. In the zone we have peat which must be included in turnover on a larger scale. It is time to become truly organized and to begin using wastes from the timber processing industry. Lignin, sediment from waste water and various consumer waste products should be included in turnover.

In many enterprises straw remains unused from year to year. Often it is burned off in the spring or rots on roadsides. We are not talking about a small amount. If we look at accounts, each year over 3 million tons of straw remains unused. Of course we cannot further tolerate such a situation. Straw is an important reserve for replenishing reserves of organic fertilizers.

Under zonal conditions the cultivation of green crops for fertilizer is also unavoidable. After all, not having a high soil fertility means not having stable and high harvests and above all, grain crops. Sweet clover, spring rape, oil-bearing radish and some other crops can be used as green manure crops.

More work must be done to lime soils, to create phosphorus reserves in them and to solve other problems. According to data from the agricultural administration of Krasnoyarsk Krayispolkom and the kray agrochemical laboratory, the amount of humus in the soil is decreasing in the kray. On the area studied, 17 percent of arable land contains up to 4 percent humus, 28 percent--4-6 percent and 25 percent--6-8 percent. A comparison



of the results of experiments of various lengths showed that in the southern part of the kray and in Khakass Autonomous Oblast the humus content of the soil is decreasing primarily because of the negative effects of soil erosion and of ineffective work with organic fertilizers.

In the kray we also have 658,000 hectares of acidic soils, including 40,000 hectares that are greatly acidic and 220,000 hectares of average acidity. In order to maintain a deficit-less balance of humus it is essential to annually apply over 5 tons of organic fertilizers per hectare of arable land and a total of no less than 20 million tons. At the present time no more than 8 million tons are applied, or 1.5-2 tons per hectare of arable land.

No better is the situation involving the content of nutritive substances in the soils of Buryat ASSR and Tuva ASSR and Irkutsk and Chita oblasts, where the soil is poor in humus and relatively infertile. In the region as a whole the potential productivity of soil is not high--17 percent of soil is acidic, 46 percent of soil has a low content of available forms of phosphorus and 9 percent has the same type of content of exchange potassium.

Thus, the situation involving soil fertility is an alarming one and for this reason the use of organic fertilizers is important within the system of agrochemical measures in the zone. To organize proper work with organic fertilizers it is necessary to take decisive measures and to achieve the fulfillment and over-fulfillment of established quotas related to the building of manure storehouses, shops and compost platforms. The five-year plan calls for the building of manure storehouses with a capacity of 2 million tons, which will achieve the storage of only 8 percent of the accumulated and used manure. But in the region building of such storehouses is proceeding badly. All of this results in primitive methods of preparing organic fertilizers and in great losses of nutritive substances.

Increased effectiveness in the use of organic fertilizer is related to the place where it is used and the use schedule. In the region there are 1.7 million hectares of clear fallow. The application of the main quantity of organic fertilizer on fallow with complex agrochemical cultivation and on late-fall plowed fields is a dependable way to increase its effectiveness.

Liming is becoming an important factor in increasing soil fertility in the region. It is of special significance to Krasnoyarsk Kray and Irkutsk Oblast, where the area of acidic soils is increasing. Calculations show that the optimal liming area in the zone is no less than 850,000 hectares, requiring the application of over 3 million tons of liming materials. However, at the present time this work is carried out on an area of only 7,000 hectares and 38,000 tons of  $\text{CaCO}_3$  are applied. The shortage of liming materials for optimal liming of arable soil now equals 2 million tons. This problem must be solved by means of the utilization of local resources, including belite [cement] flour, the reserves of which equal about 40 million tons. There are significant resources of liming materials in Irkutsk Oblast. It is important to organize the production of liming materials for the needs of agriculture now in existing enterprises. The initiative of oblast and republic Sel'khoztekhnika [Agricultural Equipment Association] associations is needed in this important work. All sources must be quickly put to use to further this work.

Among the reasons for the inadequate level of agricultural production in Eastern Siberia are the non-comprehensive use of the means of chemicalization and the serious shortcomings in their use. In recent years in the zone the introduction of the KAKhOP method--comprehensive agrochemical cultivation of fields--has begun. This is a promising direction. It is here that Sel'khozkhimiya [Agricultural Chemical Association] must play a role. The first results obtained on comprehensively agrochemically cultivated fields attest to the high level of effectiveness of this method. The productivity of thoroughly chemically-treated fields is increasing by 35-40 percent everywhere. For example, in Yasrebovskiy Sovkhoz, Krasnoyarsk Kray, on an area of 208 hectares with the application per hectare of 80 tons of organic fertilizer, 180 kilograms of mineral fertilizer and herbicide treatment the yield of spring wheat was 30 quintals per hectare, which is 11 quintals more than the average productivity in the sovkhoz. There are many other similar examples. As a result of KAKhOP an additional 5.4 quintals and 5 quintals of grains were produced per hectare in Krasnoyarsk Kray and Irkutsk Oblast respectively.

In order to obtain the best results from the method it must be used on a particular field every 5-6 years. Thus, KAKhOP must fully occupy the entire area of fallow.

Expanding the volume of KAKhOP is of exceptionally great importance when introducing non-mouldboard plowing. The fact is that in such crop rotations (usually 5-field) it is very important to organize the application of organic fertilizers, liming materials, phosphorus meal, superphosphate and potassium fertilizer if necessary on the fallow fields where they can be applied and where they will have a positive effect on all of the crops in the crop rotation. This type of work experience exists in Shushenskiy Rayon of Krasnoyarsk Kray.

In recent years more mineral fertilizer has begun to arrive in the Eastern Siberian region. Growth in the delivery of mineral fertilizers has enabled us to increase their use with agricultural crops (for grains--up to 21 kilograms of active substance, vegetables--296 kilograms of active substance and potatoes--172 kilograms of active substance). However, the effectiveness of mineral fertilizers still remains low. In 1983 the return on 1 ton of mineral fertilizers applied to grain crops in Tuva ASSR, for example, was lower than the norm by a factor of 2. In Irkutsk Oblast 185 kilograms of active substance was applied per hectare of potatoes and only 113 quintals per hectare was the yield. This type of potato yield can be achieved without the use of mineral fertilizers.

With the goal of raising the effectiveness of mineral fertilizers and return in terms of yield, progressive application methods should be utilized--row and local, dosages recommended by science should be adhered to and agricultural crops should be cultivated according to industrial technology. All that is progressive is still utilized in an insufficient volume. In 1982 the plan for row-application of mineral fertilizers was fulfilled by 95 percent in Irkutsk Oblast, 87 percent in Chita Oblast and 89 percent in Buryat ASSR. In 1983 Buryat ASSR fulfilled its plan by only 64 percent, and Tuva ASSR--by 37 percent.

In the near future it is essential to also take effective measures to utilize the means of chemicalization better. Among organizational measures, the most important is developing chemicalization points. They can belong to enterprises or be inter-enterprises or affiliates of Sel'khozkhimiya. In the region only 49 points have been created.

In many enterprises there is no material base to achieve the preservation of mineral fertilizers being delivered (storehouse supplies--71 percent). Plans for building storage facilities fail each year. In 1983 the plan was fulfilled by 41 percent in Krasnoyarsk Kray, by 82 percent in Irkutsk Oblast and by 65 percent in Buryat ASSR. The building plan was fulfilled by Chita Oblast and Tuva ASSR.

RSFSR Minsel'khoz [Ministry of Agriculture] has assigned the region the task of building storehouses for mineral fertilizer with a capacity of 82,000 tons in 1984-1985, including in Krasnoyarsk Kray--25,500 tons, in Irkutsk Oblast--31,500 tons, Chita Oblast--13,000 tons, Buryat ASSR--7,400 tons and Tuva ASSR--3,600 tons. This is a realistic assignment and everything possible must be done to achieve its fulfillment.

Among other important reserves of Siberian fields I would like to single out the improvement of seed farming. Recently a great deal of attention has been paid to this question. However, seed farming is improving slowly in enterprises. The proportion of quality grain crops equals 90 percent. Plans on the sale of seed of the highest reproductions are not fulfilled, the necessary controls over the proper use of this seed are absent and significant areas of grains are sown with seed of the fifth and subsequent reproductions.

In the zone's enterprises the material-technical base of seed farming is still developing slowly. Specialized seed farming enterprises are not fulfilling plans on the sale of seed. In many kolkhozes and sovkhoses unsorted seed with a high moisture content is put into storage and work to bring the seed up to sowing condition is postponed until winter or spring, which has a negative effect on seed quality.

Shortcomings in seed farming of perennial grasses were one of the reasons for the poor assimilation of crop rotations and for the low productivity of grasses. Perennial grasses are utilized for many years in violation of the alternation of crops; grass stands are sparse. Serious attention must also be given to potato seed farming.

Measures developed in 1983 in krays, oblasts and autonomous republics to improve seed farming and strengthen its material-technical base and confirmed by order of the RSFSR Ministry of Agriculture must be unconditionally carried out on schedule.

The enterprises of Eastern Siberia have many other unused reserves for increasing soil fertility, the productivity of agricultural crops and the effectiveness of production. Their use depends on the persistence, responsibility and high level of organization work demonstrated by each farmer. Only on this basis will it be possible to successfully implement the country's Food Program.

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## MAJOR CROP PROGRESS AND WEATHER REPORTING

### 1984 CROP PERFORMANCE, CURRENT PREPARATIONS DISCUSSED

Minsk ZVYAZDA in Belorussian 1 Feb 85 p 1

[Editorial]

[Excerpt] The first month of the final year of the 11th Five-Year Plan is over. It was characterized by a further rise in the political and labor commitment of the Soviet people. Our republic's working people have launched even broader competition for successful fulfillment and overfulfillment of the plans and obligations of the current year and the five-year plan as a whole.

Workers on the farm and in the whole agroindustrial complex have done considerable work to implement the Food Program. Last year they harvested 12.917 million tons of potatoes, 1.441 million tons of industrial sugar beets, 98,000 tons of flax fiber, and 956,000 tons of vegetables. The base for this year's harvest is being prepared even more diligently. The kolkhozes and sovkhoses are well provided with spring crop seeds that have been brought up to sowing condition. Massive repairing of farm equipment is under way. Excellent results have been achieved in livestock raising. The production of all types of livestock products has risen.

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CSO: 1811/020

## MAJOR CROP PROGRESS AND WEATHER REPORTING

### SPRING SEED READY, NEW VARIETIES DEVELOPED

Minsk ZVYAZDA in Belorussian 8 Feb 85 p 1

[Article by Belta correspondent S. Poletskov: "Destination: The Fields"]

[Text] Specialized farms of Belorussia have completed the preparation of top grade seed for the spring sowing. Over 300,000 tons--more than half the total planting stock--have been shipped to the kolkhozes and sovkhozes. The grain has been treated and cleaned on automated production lines.

"Systematic conversion of seed raising to an industrial basis will make it possible to get new, intensive Belorussian varieties into the fields faster," says F. I. Pankratovich, deputy chief of Belsortsemob'yedineniye. "Belorusskaya-80 wheat, which was recently zone-adapted [rayonirovannaya], has proved to be highly productive and is capable of yielding 50 to 60 quintals of grain per hectare. The farms are also getting Zazerskiy barley seed raised at experimental bases. It has a stalk of medium height and is resistant to lodging. Compared with Favorit, for example, the additional crop yield comes to 6 quintals per hectare. Of the legume grains, farmers have been paying attention to Narachanskiy lupine, which is resistant to diseases."

Several other new varieties are now being tested on experimental plots, including Krynychny [klyuchevoy] barley and Zhodzinskiy lupine, which will be "making their home" in the fields in the next five-year plan. [For an earlier article (4 February 1985) on the seed situation in Belorussia, refer to CSO: 1824/200 ]

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CSO: 1811/020

## MAJOR CROP PROGRESS AND WEATHER REPORTING

### LOCAL FARM DELAYS SEED PREPARATION

Minsk ZVYAZDA in Belorussian 27 Jan 85 p 2

[Cartoon by A. Korshakevich plus commentary]

[Text] Hard-working farmers who are concerned about their future crops have long since prepared their seed and are storing them carefully. On Rassvet Kolkhoz in Zhlobinskiy Rayon, however, they didn't think about it until part of the buckwheat was spoiled. And they delayed in preparing barley, lupine, and oat seed too. But time won't wait. What do local agronomists think they're going to be sowing? (From materials of Peoples Control Organs.)

[Cartoon shows farm workers smoking cigarettes and taking their ease atop mounds of oat, barley, and buckwheat seed. Caption: "Our seed preparation is in full swing"].

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CSO: 1811/020

MAJOR CROP PROGRESS AND WEATHER REPORTING

BRIEFS

SPARE PARTS NEEDED--Kurgan Oblast--During these winter days the village machine operators of Kurgan Oblast are actively preparing for spring field work. Equipment repair is proceeding at a good pace. Over 85 percent of soil-cultivation equipment is ready. Sowers and irrigation and other technology are being readied better than before. Much has been done to repair grain-harvesting combines; 9,000 of 13,000 of these machines are ready for work. Many rayons have focused their efforts on the repair of feed-harvesting equipment. They want to finish this work by election day. "Nevertheless," says the deputy director of the oblast agricultural production administration, A. K. Averkov, "we are not satisfied with the course of tractor repairs. Their readiness does not exceed 81 percent. This is lower than last year's levels." Aleksay Kuz'mich named several enterprises in the country which do not fulfill their plan obligations on delivering spare parts. Thus, Yaroslavl Motor Plant did not deliver 69 crankshafts for motors of K-700 tractors to the oblast. Meanwhile, it is only because of these crankshafts that 78 heavy tractors remain idle. Rubtsovskiy Tractor Plant owes 60 percent of drive gears for the T-4 tractor's rear axle assembly. Tutayevskiy Plant of Diesel Units (Yaroslavl Oblast) did not send a single one of 1,414 sealing rings for water pumps. This seems to be a trifle, but the motor cannot work without it. Transural machine operators are making persistent demands toward collectives of supplier plants to improve the delivery of spare parts. This will facilitate rapid quality preparation of equipment for spring. [By I. Shevchenko] [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 3 Feb 85 p 1] 8228

PLOWING UNDERWAY--Kurgan, 27 [Aug] (By telephone)--The harvest has just begun but many kolkhozes and sovkhoses in the oblast, having created large plowing detachments, are carrying out fall plowing. Under local conditions fields plowed in August are close to clear fallow in quality. In Kargapol'skiy, Safakulevskiy, Vargashinskiy and Chistoozerskiy rayons the soil has been plowed on a significant area. Farmers of Safakulevskiy Rayon have already prepared over 10,000 hectares of fall plowed fields, including 1,500-2,000 hectares by the machine operators of Sibiryak and Zapadnyy sovkhoses. In the enterprises of Mokrousovskiy, Pritobol'nyy and other rayons plowed land is being levelled. [By I. Shevchenko] [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 28 Apr 85 p 1] 8228

28 March 1985

COMPETITION AMONG MACHINE OPERATORS--Kurgan, 8 [Sep] (By telephone)--In recent years competition has become popular among village machine operators in the oblast who have plowed no fewer than 1,000 hectares of fall fields during a season, the "thousanders." In Shumikhinskiy Rayon high results have been achieved by dozens of machine operators. [By I. Shevchenko] [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 9 Sep 84 p 1] 8228

PLOWING CONTINUES--Kurgan, 17 [Sep]--Finishing the harvesting of spring crops, village machine operators are carrying out fall plowing on the second million hectares. High output has been achieved by many machine operators in Shumikhinskiy, Kargapol'skiy, Safakulevskiy and other rayons. [By I. Shevchenko] [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 18 Sep 84 p 1] 8228

PLOWING PLANS--Krasnoyarsk, 21 [Sep]--Following threshing we have the stacking of straw and the plowing of fall fields. In the kray more equipment than last year was allocated for this purpose. A high output is achieved by tractor operator V. Yelizarov in Shuvayevskiy Sovkhoz, who will plow over 800 hectares during the season. In the kray as a whole about 1.8 million hectares of fall fields will be plowed. [By P. Zinkev] [Moscow SEL'SKAYA ZHIZN' in Russian 22 Sep 84 p 1] 8228

SNOW RETENTION ON FIELDS--Krasnoyarsk, 9 [Feb]--This year's Siberian winter is abundant in snowfall. This was true even in the steppe Minusinskaya Basin, where usually there is little snowfall at this time. Assiduous directors organized snow retention in many enterprises of Krasnoturanskiy, Uzhurskiy, Nazarovskiy, Balakhtinskiy, Rybinskiy and other rayons in the kray. [By P. Zinkev] [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 10 Feb 85 p 1] 8228

WINTER IRRIGATION--Gorno-Altaysk (TASS)--The reclamation workers of Gornyy Altay have begun moisture accumulation using the method of winter irrigation. They make dams on non-freezing rivers and water moves into the fields by its own accord. Accumulated moisture will remain in the soil longer than usual and the necessity for spring irrigation is eliminated. This frees people and equipment during sowing operations. Many enterprises have begun winter irrigation, following the example of Gorno-Altaysk reclamation workers. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 24 Nov 84 p 1] 8228

ACCUMULATING MOISTURE FROM SNOW--Barnaul, 7 [Dec]--The beginning of winter gladdened the grain farmers of steppe Kulunda--the fields were immediately covered with a thick blanket of snow. Most enterprises of Uglovskiy, Mikhaylovskiy, Kulundinskiy, Slavgorodskiy and other rayons immediately began carrying out winter agrotechnical measures. [By A. Torichko] [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 8 Dec 84 p 1] 8228

SNOW RETENTION CONTINUES--Barnaul, 23 [Jan]--After severe December cold, which hindered snow retention somewhat, the plowing of snow has begun once again. In Novichikhinskiy Rayon, for example, snow windrows have already been formed on 12,000 hectares. Work is especially well organized in Rodina and Progress kolkhozes. The link of machine operators working together provides a good example of highly productive labor in snow retention. In Zarya Kommunisma Kolkhoz, for example, they overfulfill shift quotas by 20-30 percent. [By A. Torichko] [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 24 Jan 85 p 1] 8228

INNOVATIONS BRING RESULTS--Novosibirsk--The grain farmers of Novosibirsk Oblast have become convinced through practical experience about the effectiveness of the zonal system of farming proposed by scientists. Most enterprises which have begun harvesting rye are producing up to 20 quintals of grain per hectare. During the current five-year plan the structure of arable land here has been altered. The area of fallow has been increased. On a large scale--on over 1 million hectares--non-mouldboard cultivation of land has been introduced. Schemes for the movement of large-capacity tractor-trailer rigs, which will be involved in moving the harvest, were developed ahead of time before the start of harvest operations. Intermediate threshing floors have been created. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 23 Aug 84 pl] 8228

GOOD SEED FUND CREATED--Tomsk, 6 [Feb]--Last fall was complex and difficult due to weather conditions. Nevertheless, most oblast kolkhozes and sovkhoses were able to procure good seed for grain crops. In Shegarskiy and Pervomayskiy rayons, for example, the cleaning of sowing material was fully completed. Many kolkhozes and sovkhoses have only high-class seed. Seed is called the "golden fund" of the harvest. Its quality will greatly influence increased grain production. [By P. Chernov] [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 7 Feb 85 p 1] 8228

CSO: 1824/227

## LIVESTOCK

GROSSU, OFFICIALS NOTE PROBLEMS IN MOLDAVIAN LIVESTOCK SECTOR

Kishinev SOVETSKAYA MOLDAVIYA in Russian 10 Feb 85 pp 1, 2

[Article: "Tasks in the Intensification of Animal Husbandry"]

[Text] A republic seminar-conference of first secretaries of party raykoms, first deputy chairmen of rayispolkoms for problems of the agro-industrial complex, administrators of ministries of the republic's agro-industrial complex, chairmen of rayon kolkhoz councils and Kolkhozzhivprom associations, and ragers and chief specialists of interfarm beef and pork production enterprises was held in Floreshty on 8 February. The participants discussed how to strengthen the organizational work of party, soviet, and farm agencies in meeting the requirements of the CPSU Central Committee to successfully conduct the wintering of publically owned livestock and to implement measures for further intensifying the branch and perfecting its labor organization and wages.

S. K. Grossu, first secretary of the Moldavian Communist Party Central Committee, gave a speech at the seminar-conference.

V. A. Ryabchich, chairman of the republic kolkhoz council, spoke on the state of affairs in the republic interfarm enterprises. Other speakers included N. A. Kutkovetskiy, first secretary of the Floreshtskiy Rayon Party Committee, L. I. Vayn, general director of the Progress Scientific Production Association, and Ye. I. Bidyak, director of the Grigoripol'skiy Animal-Fattening Sovkhoz, Grigoripol'skiy Rayon.

The speakers at the seminar-conference noted achievement in 1983-1984 of significant growth in meat production during the time that the Food Program measures for better administrative structure of the branch were being realized in the republic and as a result of the integration of interfarm feed production enterprises and associations. Compared with the previous two years the average yearly indicator rose 24 percent for meat production and 26 percent for state procurements.



However, existing beef-production complexes, for which a gross weight gain of 50,000 tons had been calculated in last year's plans, achieved only 82 percent of the projected yield. Republic hog-processing plants, which have a capacity of 152,000 tons, produced only a little over 112,000 tons of meat. In a number of associations and at many enterprises the indicators of production effectiveness, weight gains, and capacity utilization show considerable variation. The speakers emphasized that the contrasts in the development of animal husbandry are explained mainly by unsatisfactory organizational and mass-political work, as well as an inadequate sense of responsibility on the part of specialists and managers within the branch. This leads to irregularities in production technology, cases of unsatisfactory utilization of feeds, and poor labor organization. It is the task of party, soviet, and farm organizations to see that the work of increasing livestock productivity and weight is carried on expediently and efficiently everywhere. The chief thrust in the intensification of animal husbandry is achieving greater yields from the same livestock population with less input of feeds, labor, and the means of production.

A further increase in republic meat production will require that a number of measures be realized in order to rapidly utilize production capacities at industrial enterprises. Those present were made aware that the feed plot must be organized better, the quality of prepared forage improved, and uniform feeding introduced in order that cattle fattening be intensified. The measures worked out to raise the effectiveness of industrial hog-breeding specify more rapid reconstruction of the enterprises and conversion of the branch to technology with a closed production cycle so as to raise hogs on an industrial basis at 85-90 percent of total capacity in the public sector.

It was pointed out that to perfect production technology and labor organization and to use feed wisely, it is necessary to bring about a significant improvement in the economic effectiveness of the enterprises' operation and a reduction in their outlays to produce one quintal of weight gain. The experience of beef-production enterprises in Floreshtskiy and Suvorovskiy rayons is important in this connection. At the former enterprises the average daily weight gain of animals was 810 grams last year. A total of 2495 tons of meat were produced compared to the planned 1900 tons. Profits amounted to 2.5 million rubles.

The introduction of the collective contract at the Suvorovskiy complex brought a steep rise in labor productivity and made possible close observation of the entire technical process. Work was remunerated in direct proportion to the quantity and quality of productive output. This helps with the constant improvement of cattle raising and fattening technology and with achieving the targets for weight gains stipulated by the plan. The lowest production cost per centner of beef -- 112.6 rubles -- was obtained at the complex.

The successes of the Floreshtskiy and Suvorovskiy, as well as several other enterprises evidence the great reserves of republic animal-breeding enterprises, associated with the extensive introduction into the branch of progressive forms of labor organization -- cost accounting and the collective contract, favorable circumstances for which exist in the form of a high degree

of production mechanization, the youth of workers and their relatively high level of general education along with the good labor conditions provided for them. The rayon kolkhoz councils and Kolkhozhivprom associations were given the task to work more cost-effectively in all sectors, overcome formalism and achieve effective internal cost accounting using the check form of control and the collective contract.

It was particularly emphasized that raising the performance of animal husbandry to a qualitatively new level requires increasingly stronger direction of this branch by the party, improvement of the style and methods of guidance as well as daily work with individuals.

The conference addressed the questions of how to bring livestock successfully through the winter and how to enhance the leading role of communists working in animal husbandry.

The seminar-conference participants learned about the knowledge acquired at the Kolkhozhivprom beef-production association in organizing the wintering of publically-owned livestock and intensifying meat production. They visited the experimental hog-processing plant in Floreshtskiy Rayon.

Ye. P. Kalenik, secretary of the Moldavian Communist Party Central Committee, and G. A. Stepanov, first deputy chairman of the MSSR Council of Ministers, took part in the seminar-conference.

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CSO: 1824/255

## LIVESTOCK

## DEVELOPMENT OF BEEF CATTLE RAISING IN RSFSR REVIEWED

Moscow SEL'SKOYE KHOZYAYSTVO ROSSII in Russian No 1, Jan 85 pp 34-36

/Article by G. Ugryzkin, RSFSR deputy minister of agriculture: "Beef Cattle Raising: Ways of Development and Intensification"/

/Text/ Agricultural workers in the Russian Federation persistently implement the Food Program adopted by the May (1982) Plenum of the CPSU Central Committee, whose main goal is to ensure in the shortest possible time a stable supply of all types of foodstuffs for the population and to significantly improve the structure of the diet of the Soviet people at the expense of the most valuable and, primarily, meat products.

The implementation of what has been envisaged will make it possible to increase per-capita meat and meat product consumption to 70 kg by 1990. At the same time, the entire increase in production should be attained at the expense of intensive factors--rise in productivity on the basis of the strengthening of the feed base, perfection of selection and pedigree work, improvement in the utilization of the breeding stock and introduction of new forms of production and labor organization. In 1985 the average daily weight gain per head should be no less than 570 grams (in 1983 it was 503 grams) and in 1990, a total of 670 grams. In other words, productivity should increase by almost 100 grams, or by 17 percent.

At the same time, work on an extensive introduction of full-ration and balanced feeding of animals and a reduction in murrain in cattle and in its weight losses during transportation from farms to enterprises of the meat processing industry should be carried out on a wide scale. The further reconstruction and expansion of sections, overall mechanization of labor intensive processes and improvement in the forms of production and labor organization now acquire great importance.

The implementation of the entire set of these measures will undoubtedly ensure the further growth of beef production.

Beef production per head of cattle available at the beginning of the year should become the unit of measurement of the results of our work in this sector. In 1985 this indicator will have to be brought up to 108 kg as a minimum and in 1990, up to 126. Meanwhile, in 1983 only 99 kg were produced

and on farms in Astrakhan, Kursk and Chita oblasts and in Dagestan, Kabardino-Balkar, North Osetian, Checheno-Ingush and Tuva autonomous republics, only 62 to 80.

In 1983, for the first time in the last 10 years, the republic overfulfilled the plans for the sale of basic types of livestock products to the state. The proportion of young stock weighing from 350 kg and more comprised 58 percent of the total purchases of young stock. In 9 months of 1984 a total of 50 oblasts, krays and autonomous republics delivered cattle weighing more than 350 kg for processing. Throughout the republic in January-September 1984 the average weight per head of cattle was 367 kg.

Now it is important to consolidate and develop positive tendencies in animal husbandry. We must see to it that in the very near future all young cattle weighs no less than 400 to 500 kg during sale and on specialized farms, 550 and more.

Critically analyzing the state of cattle raising in the last 15 years, it must be noted that this sector developed at slow rates. Throughout the republic from 1976 through 1983 inclusive there was a significant reduction in beef production with local feed on farms of traditional dairy husbandry in North-West, Central and Central-Chernozem regions. The tendency toward a reduction was visible ever more clearly in Volgograd, Kurgan, Novosibirsk, Omsk and Irkutsk oblasts. Beef production increased there as a result of the commissioning of capacities of large complexes meeting the need for concentrated feed from state resources. At the same time, in Leningrad, Moscow, Belgorod, Kuybyshev, Saratov and Ulyanovsk oblasts, in Tataria and Bashkiria and in Krasnodar and Stavropol krays beef production increased not only at complexes, but also at ordinary sections of kolkhozes and sovkhozes.

The practical experience of many farms and entire oblasts shows that beef production should grow primarily as a result of the intensification of the raising and fattening of young stock. Fattening sections of sovkhozes and kolkhozes, complexes, specialized farms and interfarm enterprises can serve as the production basis for this.

During all those years the transfer of beef production to an industrial basis occurred along two directions. First, specialized sections were reconstructed and consolidated, which made it possible to apply the basic elements of industrial technology at them. Second, large state and interfarm enterprises for beef production with industrial technology were built.

In the Russian Federation at present more than 2,000 specialized farms for beef production operate and 166 large mechanized complexes for 1.3 million head of cattle have been built and are in operation.

In the next few years existing sections and complexes will be expanded and reconstructed and specialized, new farms will be organized in a number of oblasts, krays and autonomous republics, which will make it possible to utilize capital investments in the sector with the greatest effectiveness.

The basic increase in beef production will be obtained as a result of a better organization of the reproduction of young stock and intensification of weight gains.

Land reclamation on these farms, development of irrigation and a fuller utilization of the animal husbandry runoff, sections and complexes will be of great help in the accomplishment of the task of intensification in the raising and fattening of cattle.

At the same time, the development of beef cattle raising, a sector to which many oblasts, krais and autonomous republics as yet do not pay proper attention and, to be frank, many local agricultural bodies as yet do not understand the need for its development, along with the development of dairy cattle raising, will play a significant role in the increase in the production of high-quality beef in the very near future.

Beef sections on farms in Voronezh, Kurgan, Kemerovo, Rostov and Gorkiy oblasts and Krasnodar Krai and on some others have been groundlessly liquidated in recent years, as a result of which the stock of cows on RSFSR farms on 1 November has declined.

At present most cows of beef specialization (75 percent of their total number) are concentrated on farms in North Caucasian, Volga and Ural regions. In economic regions and zones cattle of beef breeds and their crossbreeds has not been placed uniformly on some farms of oblasts, krais and autonomous republics. For example, in the Volga Region 52 percent of the cows are in the Kalmyk ASSR. In the North Caucasian Economic Region Rostov Oblast accounts for 63 percent of the cows and in the Ural Economic Region Orenburg Oblast, for 73 percent.

Three mechanized pedigree stock farms and 20 pedigree stock sovkhozes, where there are more than 30,000 cows, now operate in the republic. Furthermore, 52 pedigree stock sections are engaged in raising pedigree cattle of beef breeds. On most of these farms pedigree stock sections are small and many of them are loaded with commodity output not envisaged by specialization. As a result, the existing network of pedigree stock farms does not ensure the raising of the necessary quantity of young pedigree stock.

Beef cattle raising develops successfully on farms where organizational-economic and technological problems are solved promptly and correctly. For example, on the Stepnoy Sovkhoz in the Kalmyk ASSR an efficient management of the sector has been mastered in conformity with the specific conditions of this sovkhoz and the requirements of the biological characteristics of the Kalmyk cattle breed. Beef cattle raising on the sovkhoz is a profitable undertaking. On this farm in the last few years the production cost per quintal of weight gain has been 100 to 150 rubles. Even during 1983, which was an unfavorable year, the sovkhoz obtained 85 calves per 100 cows and heifers, delivered cattle of an average weight of 416 kg to the state and the sector's profitability comprised 65.7 percent. Beef cattle raising in this republic is also profitable on the 40 Let VLKSM Sovkhoz, the Ulan Kheyech Sovkhoz and a number of others.



On the Zimovnikovskiy Sovkhoz in Rostov Oblast beef production is based on the breeding of cattle obtained from the multibreed crossing of cows and heifers of red steppe and Simmental breeds with bulls of Kalmyk, Charollais, Limousin and other beef breeds. All-year-round loose outdoor nonpasture keeping of cows with calves before weaning has been introduced on the farm. It engages in a purposeful raising of replacement stock, as well as in an intensive raising and fattening of extra replacement young stock. On Zimovnikovskiy there are almost 10,000 head of cattle of beef specialization, including more than 3,000 cows. The yield of calves per 100 cows and heifers on the sovkhoz is 85 to 90 head. The average annual production of beef in live weight is more than 1,000 tons and young stock of an average weight of 400 kg and more is sold. The sector is profitable.

On the Varshavskiy Sovkhoz in Chelyabinsk Oblast beef cattle raising is developing on the basis of the breeding of cattle obtained from the industrial crossing of cows of the Simmental breed with bulls of Kazakh white-head and Hereford breeds. At the beginning of 1984 it had 7,200 head of beef cattle. In 1983 a total of 936 tons of meat in live weight were produced and 85 calves per 100 cows were obtained. A total of 18 man-hours per quintal of weight gain were spent. The average daily gain in the herd was 609 grams. The average weight per head sold for meat reached 427 kg, including of young stock, 465. From beef cattle raising alone the farm obtained 990,000 rubles of profit. The profitability level reached 42 percent.

On the Sonskiy Pedigree Stock Sovkhoz in Krasnoyarsk Kray on 1 January 1984 there were 3,200 head of beef cattle of the Hereford breed, including 1,100 cows. A total of 91 calves per 100 cows were obtained in 1983. The sector gave 738,000 rubles of net profit and profitability comprised 41 percent.

The experience of these and other farms shows that beef cattle raising can develop successfully in sparsely populated steppe, semidesert, mountain and taiga regions and is effective in regions of intensive farming with developed field feed production. Furthermore, this sector requires minimal labor expenditures and expensive livestock structures are not necessary.

Zootechnician M. Glinka expressed an interesting thought about beef cattle raising in the article "The Key to the Beef Herd" published in the newspaper SEL'SKAYA ZHIZN' last May. He believes that it can serve as the basis for the revival of remote rural areas and villages, where livestock structures still exist and there are sufficient hayfields and pastures, but not enough manpower. It is hardly advisable to build small dairy sections in such villages, as is done in some oblasts. Dairy cattle raising is a highly labor-intensive sector. But beef cattle raising will be profitable under such conditions. F. Eysner, corresponding member of the All-Union Academy of Agricultural Sciences imeni V. I. Lenin, a famous expert in the beef sector, believes that a critical shortage of labor resources should be the basic indicator determining the advisability of development of beef cattle raising on a given farm.

The majority of beef sovkhozes are located in the risky farming zone, where, owing to the unfavorable weather conditions of recent years, the yield of agricultural crops has dropped sharply. This has led to the underfeeding of

cattle both during winter and summer periods. In a number of places agricultural bodies and farm managers and specialists, instead of strengthening the feed base, have reduced the beef herd. As of 1 November 1984, as compared with last year, the stock of beef cows was reduced by 15 percent and more in Ryazan, Tula and Kirov oblasts and in the Mordovian ASSR. The number of cows also decreased on farms in Chita and Saratov oblasts, Krasnodar Kray and the Bashkir ASSR.

For example, in Kemerovo Oblast in 1984 the beef cattle raising sector was liquidated completely, whereas in 1975 there were more than 5,000 beef cows in the oblast. The situation in Chelyabinsk, Kurgan and Voronezh oblasts and in the Tuva ASSR is not better. Beef cows have been replaced with dairy cows there, or have been simply transferred to the dairy herd. Local managers, ignoring losses, violate the sector's management technology. Beef cows are even milked here.

Involuntarily, the following doubt can arise: Is the need to develop beef cattle raising as an independent sector questioned? All the more so, because many people sincerely convinced that, to increase beef production, it is enough to organize an intensive fattening of young stock obtained at dairy sections, can be found among farm managers and specialists.

Where is the truth? What is more profitable, more convenient and better?

In fact, a dairy cow gives not only milk, but a calf as well, and the young stock of our breeds is fattened quite well. It is also true that, by increasing the average weight of the animals delivered for processing even to 400 kg, it is possible to additionally obtain hundreds of thousands of tons of beef (if to be completely accurate, 10 percent of the gain).

Nevertheless, with the most exemplary organization of fattening dairy sections alone are unable to give the necessary amount of beef. A highly productive cow can supply milk for 10 to 15 people, but meat, for no more than five or six. There is one way out. It is especially important for all people to know that with the growth of dairy productivity of cows the development of beef cattle raising in all the regions of our republic is an urgent need.

Scientists have investigated the most different alternatives of the prospects for the development of milk and meat production. Their conclusion is unequivocal: In order to obtain sufficient beef, in the very near future for each three or four cows of the dairy herd it is necessary to have no less than one cow in the beef herd.

In order to be ready for this work, right now it is necessary to establish, even if small, beef sections or specialized farms for the raising of cattle of beef breeds in every region. The industrial crossing of low-productivity cows of dairy breeds with bulls of beef breeds will be of great help for this. At the same time, it is necessary to take into consideration the big advantage of cattle of specialized beef breeds manifested in intensive fattening.



The testing of bulls of the Hereford breed on the Yubileyny Pedigree Stock Sovkhoz in Omsk Oblast has shown that in the herd there are highly productive and promising types of animals, whose average daily gain during 210 days of testing has been 1,300 to 1,400 grams and live weight at the age of 15 months, 520 to 540 kg. High results have been obtained on the Mechanized Pedigree Stock Farm imeni Parizhskaya Kommuna in Volgograd Oblast on Aberdeen-Angus cattle, on the Ural'skiy Pedigree Stock Sovkhoz in Orenburg Oblast on cattle of the Kazakh white-head breed, on the Vpered Sovkhoz in Ryazan Oblast on bulls of the Charollais breed and on the Pedigree Stock Sovkhoz imeni Kalinin in the Kalmyk ASSR on Kalmyk cattle. Only six or seven feed units per kilogram of weight gain are used up here. At the same time, the dressing percentage reaches 60 to 62, as compared to 55 or 57 in animals of dairy and mixed breeds. At the same age the weight of the carcass of beef cattle often surpasses the weight of dairy cattle. Furthermore, this carcass has 4 to 6 percent less bones and sinews. The muscle tissue in beef cattle grows most intensely in the region of the back, loin and pelvis, which give the most valuable cuts. With respect to fat, it is deposited primarily in muscles, thereby greatly improving the culinary properties and taste of meat.

As is well known, a policy of the maximum possible intensification has now been adopted in dairy cattle raising. Output is to be increased here primarily through a rise in the milk yields of cows without a significant stock growth. But there is a shortage of this stock. This once again convinces us of the need to increase the beef herd. It goes without saying that beef cattle raising should also be transferred to the path of intensive development.

Unfortunately, here and there average daily weight gains in this sector remain lower than in the entire cattle herd. For example, in Altay Kray in 1983 the average daily weight gain of beef cattle was 232 grams, whereas on the kray's kolkhozes and sovkhozes, 365; in Tomsk Oblast, 412 and 440 grams respectively and in Saratov Oblast, 455 and 485. In a number of places kolkhozes and sovkhozes deliver cattle of beef specialization with very low weight grades for processing.

The practice of advanced workers shows that beef cattle raising becomes profitable when a farm obtains 85 to 90 calves per 100 cows and heifers and no less than 800 grams of average daily weight gain and delivers cattle weighing 450 to 500 kg at the age of 17 to 18 months. With such indicators the sector's profitability is not below 40 to 45 percent.

Meanwhile, many specialized farms commit serious violations in the basic elements of technology and, in particular, confine themselves only to the use of the method of raising calves without weaning. At the same time, they forget the establishment of a firm feed base, poorly organize herd reproduction and do not select breeds most effective for the development of beef cattle raising under specific conditions of management. The possibilities of interfarm cooperation are not utilized sufficiently in many zones.

The bareness of cows does great damage to beef cattle raising. In Amur Oblast in 1983 the yield of calves per 100 cows was only 29, in Saratov Oblast, 40 and in Stavropol Kray, 47. As the saying goes, these figures need no comments.

Economically advantageous standard plans of sections and complexes for beef cattle and, especially, of small-size sections, that is, for 200 to 400 cows, are still worked out poorly and existing barns are reconstructed and modernized slowly.

Attaching serious importance to the introduction of advanced methods into beef cattle raising, the Union Ministry of Agriculture selected 19 specialized farms in the country for developing the technology of herd reproduction and cattle raising. Nine of these farms are located on the territory of the Russian Federation.

The use of the "cow-calf" system with the maximum length of the pasture keeping of cows with progeny, which has proved its value, use of spring calving, winter keeping of adult cattle in light-type barns and intensive raising and fattening of young stock on grounds in specialized subdivisions and farms should become the basic organizational-technological principles of innovation.

For the purpose of increasing the productivity of animals and lowering expenditures of labor and capital on beef production, on specialized farms it is necessary to organize shops for the reproduction and raising of young stock up to the age of 6 to 8 months and for this purpose to ensure the production of no less than 95 calves per 100 cows and heifers, as well as high average daily weight gains in animals. Special attention should be paid to a strict observance of the technology of management of beef cattle raising.

It is also necessary to improve and widely introduce advanced forms of labor organization based on the collective contract with a payment for the end result.

The weak feed base remains one of the main reasons for the unsatisfactory work of specialized farms. As a rule, specialized beef farms have at their disposal sizable areas of natural fodder land. Therefore, problems concerning its fundamental and superficial improvement should be in the forefront.

This is how Comrade K. U. Chernenko formulated this task at the October Plenum of the CPSU Central Committee: "The introduction of proper order in natural fodder land is an urgent matter. As is well known, its areas are vast. I would say that it is simply impossible to overestimate the reserves of this essentially inexhaustible storeroom of natural feed. An increase in the productivity of all meadows and pastures must be undertaken without delay, with all strength and with all persistence."

This is the task now facing agricultural workers: During the time remaining before the end of the 11th Five-Year Plan to direct all efforts toward an unconditional fulfillment of the planned assignments and on the threshold of the 27th party congress to double their efforts in order to fulfill the adopted socialist obligations for the current year and the 11th Five-Year Plan as a whole. The labor achievements of advanced collectives should become the norm for every farm.

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## LIVESTOCK

### ACCELERATING BEEF CATTLE RAISING IN SIBERIA, FAR EAST

Omsk ZEMLYA SIBIRSKAYA, DAL'NEVOSTOCHNAYA in Russian No 11, Nov 84 pp 26-28

[Article by K. T. Munkoyev, professor at the Buryatskiy SKhI [Agricultural Institute], M. I. Ragimov, candidate of agricultural sciences, SibNIPTIZh [Siberian scientific research point for technology in the livestock industry]: "Accelerated Growth for Beef Production!/ Potential of the Beef Herd"]

[Text] In the rayons of Siberia and the Far East in 1975-1982 average annual beef production equalled 53-55 percent of total meat sold. Per capita beef production equalled 24.9 kilograms.

Most of the beef (70-75 percent) was produced by kolkhozes and sovkhoses by means of raising and fattening above-replacement young of dairy and combination livestock breeds (Black Spotted, Red Steppe, Simmental). The share of specialized beef cattle raising is only 4 percent, and 21-26 percent comes from culled cattle from dairy farms.

Meat output in slaughter weight per head of cattle equals an average of 45 kilograms in the zone, instead of 80-90 kilograms as achieved by leading enterprises in the region. Beef calves are sold to the state at the age of 28-36 months with a live weight of 360-370 kilograms. Some increase in live weight of delivered cattle recently has resulted from prolonging the raising and fattening schedule and not from intensification of the branch. Average daily weight gain during the last 10 years has not exceeded 350-380 grams; expenditures of feed and labor are inefficiently high, equalling 12.5-12.8 quintals of feed units and 40-42 man-hours per quintal of weight gain, with a cost of 170-255 rubles. Meanwhile, in leading enterprises in the region average daily weight gain with intensive raising and fattening reaches 900-1,000 grams with expenditures of 7-8 quintals of feed units and 6-8 man-hours per quintal of weight gain and a cost of 90-110 rubles.

Research carried out by scientific institutions on the intensive raising and fattening of above-replacement calves of the Black Spotted, Simmental and Red Steppe varieties with various types and levels of feeding, different maintenance conditions and with industrial technology has established that the calves raised in the zone of dairy and combination breeds are capable of

weighing 450-470 kilograms by the age of 16 months with intensive fattening and the expenditure of 28-29 quintals of feed units, and 540-550 kilograms by the age of 18 months with the expenditure of 32-33 quintals of feed units.

The intensive raising of cattle on an industrial basis enables us to significantly curtail the expenditure of feed, to free the facility more rapidly and to economize on labor expenditures during the raising and fattening of cattle. Thus, for example, in order to produce a bullock with a live weight of 400 kilograms at the age of 25 months, i.e. not intensively, it is necessary to expend 4,000 feed units; with accelerated (intensive) raising this weight is reached at the age of 15-16 months with an expenditure of 2,500-2,600 feed units. At the present time only 12-15 percent of above-replacement calves are raised intensively, which is obviously insufficient. The main factors hindering the growth of beef productivity are, as before, a poor feed base, low quality procured feeds and unbalanced rations with regard to nutrients, macro- and micro-elements and vitamins. The zone's scientific institutions have clarified the norms for energy, protein, mineral and vitamin nutrition for calves, which confirm the possibility of achieving an average daily weight gain of 950-1,000 grams and more with balanced feeding of animals, and reaching a live weight of 430-450 kilograms at the age of 15-16 months with feed expenditures of 6.8-7.0 feed units per kilogram of weight gain and a cost of no more than 120-130 rubles. It has been determined that by increasing the energy content of rations by 20 percent over the VIZh [All-Union Scientific Research Institute of Livestock Breeding] norm it is possible to curtail the overexpenditure of protein by 12-14 percent.

During intensive fattening special attention must be paid to raising calves to the age of 6 months. During this period they must be fed in such a way as to insure a weight gain of 700-800 grams daily and a live weight of no less than 160-180 kilograms by the end of the fattening period. The raising of calves from the age of 6 months until they are sold for meat (16-18 months) must be calculated to produce an average daily weight gain of 800-1,000 grams. During this period the basis for the ration is coarse and succulent feeds with a moderate expenditure of concentrates (30-40 percent according to nutritive value). Moreover, scientific studies show that 15-17 percent of the grain ration can be replaced by grass meal and good-quality coarse feeds under conditions of balanced feeding of animals with regard to basic nutritive substances and vitamins.

Our region's scientific institutions, together with specialists and practical workers of the zone's enterprises and of oblast and kray agricultural administrations, have developed progressive technologies for beef production in complexes, on specialized farms and in feed lots. Many regional enterprises are achieving high results after having introduced these technologies. Thus, during the last 5 years the average daily weight gain on-the-hoof for calves in Verkh-Irmenskiy Sovkhoz of Novosibirsk Oblast has equalled 900-1,000 grams, the average delivery weight of calves at the age of 18-19 months--480-500 kilograms, feed expenditures per quintal of weight gain--8.0-8.5 feed units and labor expenditures--10-12 man-hours; cost does not exceed 130-140 rubles.

In Bol'shevik Kolkhoz of Ordynskiy Rayon, Novosibirsk Oblast, an average daily weight gain of 680 grams was achieved in all sex and age groups; in the feed lot--950-1,000 grams. The average delivery weight of one calf equalled 502 kilograms at the age of 18-19 months in 1983. Feed expenditures per quintal of weight gain were 7.5-8.0 feed units; labor--11-12 man-hours.

In Nazarovskiy Sovkhoz of Krasnoyarsk Kray for the last 4 years average daily weight gain for all sex and age groups has equalled 720-740 grams and in feed lots--1,000 grams and more. The cost of 1 quintal of weight gain equals 44-48 rubles, labor expenditures equal 1.6 man-hours with a feed expenditure of 7.4-7.8 feed units. Average live weight of one calf at the age of 18-19 months reaches 560-570 kilograms.

As we can see, calves of dairy combination breeds of cattle reach a high live weight and are characterized by good meat qualities if optimal feeding and maintenance conditions are provided for them. But of course it is impossible to solve the beef problem solely by means of dairy cattle. Enterprises will not be able to produce the necessary quantity of beef even with the most model raising and fattening of above-replacement calves. In order to fully satisfy growing needs of the population for meat it is essential to increase the number of beef cows. It is especially important to strengthen work on developing meat cattle raising in regions where there are pastures and in mountainous and foothill regions, as well as in places where the possibility exists of developing intensive feed production on reclaimed lands.

The main source of high-quality beef, as data from scientific institutions and the experience of leading enterprises and international practice shows, is specialized beef cattle raising. Scientific research has determined that in order to deal with problems relating to increasing beef production, as indicated in the USSR Food Program, it is necessary to have beef cattle make up 20-25 percent of the total herd of dairy and combination breeds (at the present time this figure does not exceed 4 percent in the region).

Sonskiy Sovkhoz of Khakass Autonomous Oblast, Krasnoyarsk Kray, Inderskiy and Sadovskiy sovkhoses of Novosibirsk Oblast, Charyshskiy and Inskoy sovkhoses of Altay Kray, Sanaginskiy, Komsomol'skiy and Tselinnyy sovkhoses of Buryat ASSR and others are developing beef cattle raising successfully and with a high degree of effectiveness. High fattening qualities, rapid maturation and simple technology that does not require great capital expenditures--these are the main advantages in raising specialized beef breeds such as Hereford, Kazakh White Faced and Kalmytsk. By the age of 1.5 years the animal weighs 500-550 kilograms, with an expenditure of 6.0-6.7 feed units for this. The yield of meat comprises 60-62 percent as compared to the 57-58 percent in animals of dairy and combination breeds; in addition the carcass has 4.6 percent fewer bones and tendons. As we know, muscular tissue develops most profoundly on the backs, along the backbone and in the pelvic area of meat breeds, yielding the best cuts here. Fat is usually deposited in muscles and this is why the meat has good culinary qualities and a good flavor.



In our opinion, the development of meat cattle raising can serve as the basis for the rejuvenation of "neglected" remote settlements and villages and will provide the opportunity of utilizing mountainous and foothill pastures which are difficult of access. Beef cattle raising should be developed in regions with a shortage of labor resources as well.

Efficient technology in beef cattle raising foresees seasonal calving and the upkeep of animals in light-weight facilities during the winter, and during the summer--on pastures and in feed lots. It achieves the removal of calves at the age of 7-8 months with a weight of 200-220 kilograms; by the end of the fattening period (16-18 months) they weigh 450-500 kilograms. Here the three-step technology of beef production recommended for mountainous and foothill regions is deserving of attention. It foresees keeping calves with their mothers to the age of 7-8 months during the spring-summer period. In the fall during weaning calves with a live weight of 190-200 kilograms is transferred to enterprises, where they are fattened to 300-320 kilograms. Then cattle goes to specialized enterprises for final fattening, for which beer-brewing and beet waste products are used. By the age of 18-19 months the animals weigh 480-510 kilograms and is sold to the state. This technology is being successfully introduced in the enterprises of Altay and Krasnoyarsk krais and Buryat ASSR.

The main beef breeds in our region are the Kazakh White-Faced, Hereford and Kalmytsk. In zones of intensive farming it is expedient to utilize the Charolais breed. In the zone the Barabinskaya Lowlands and the Kulundinskaya Steppe, the southern parts of Chita Oblast, the mountainous Buryat and Tuva ASSR's and the steppe regions of Krasnoyarsk Kray are promising for the development of beef cattle raising.

The necessary growth in the size of the beef cattle herd can be achieved by reproducing pure breeds, by using some of the cows from the dairy herd for beef purposes with subsequent reproduction by means of merging crossbreeding with bulls of beef breeds, or by moving calves from commercial crossbreeding into beef herds.

Positive results on the basis of commercial and merging crossbreeding have been achieved in Inskoy, Inderskiy and Sadovskiy sovkhoses of Novosibirsk Oblast and in Shirinskiy and Belelikskiy sovkhoses of Krasnoyarsk Kray. Thus, in Sadovskiy Sovkhoz each year over 1,600 head of cattle with an average live weight of 413 kilograms, an average daily weight gain of no less than 700 grams, labor expenditures of 21.7 man-hours per quintal of weight gain, feed expenditures of 14.1 quintals per quintal of weight gain and a cost of 169 rubles are fattened and sold to the state. Each year the sovkhos receives 650,000-700,000 rubles of profits.

The main reserve for the rapid improvement of the meat livestock raising branch and for increasing beef production includes improving the feeding of animals and strengthening the feed base; developing and disseminating highly productive meat animals of various types and lines suitable for commercial use, differentiated by zone in the rayon; and universal introduction into production of progressive industrial technology.

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## AGRO-ECONOMICS AND ORGANIZATION

### IMPROVE FINANCIAL PLANNING IN UKRAINIAN AGRICULTURE

Moscow FINANSY SSSR in Russian No 12, Dec 84 pp 20-23

/Article/ by V.Ye. Vedmedenko, chief of the Administration for Financing of Agriculture and Procurements of the UkSSR Ministry of Finances and V.P. Yatsyuta, candidate of economic sciences and senior instructor at KINKha: "Carrying Out the Food Program"/

/Text/ The USSR Food Program, developed in conformity with the decisions handed down during the 26th Party Congress and approved by the May (1982) Plenum of the CPSU Central Committee, calls for solutions for the many social and economic problems. The carrying out of this program will make it possible to ensure that the country's population is reliably supplied with food products. This is both an economic and socio-political task.

In conformity with the Food Program, the goal has been established throughout the republic of achieving an average annual production of grain during the 11th Five-Year Plan of 51-52 million tons, sugar beets -- 57 million tons, by 1990 to raise the milk yield per cow at kolkhozes and sovkhoses by 600-700 kilograms and during the decade to place in operation not less than 1 million hectares of irrigated land and to drain 1.3 million hectares of water-logged land. The plans call for high rates of development for the food branches of industry: during the decade, to increase the production of granulated sugar from beets by a factor of 1.7, vegetable oil -- 1.4, fruit and vegetable canned goods -- by a factor of 1.5 and potato products -- up to 35,000-38,000 tons\*.

Cost accounting and financial and credit levers play an important role in the economic mechanism for administering the agroindustrial associations. An intensification in the effect they have on development of the agroindustrial complex will promote successful solutions for the tasks of the party's agrarian-economic policies.

The implementation of the complex of measures called for in the Food Program has required the allocation of considerable monetary resources. Thus, in order to finance the expenditures required for developing the branches of the agro-industrial complex, using resources of the associations, enterprises, sovkhoses, kolkhozes, the budget and bank credits, 14,546,000,000 rubles are being allocated for the Ukraine in 1984 and this is 142,000,000 more rubles than the

\* "Prodovol'stvennaya programma SSSR" /USSR Food Program/, Moscow, Politizdat, 1982, p 11.



figure for the previous year. Moreover, the budgetary appropriations amount to 2,789,000,000 rubles, or 19.2 percent of the funds allocated. The financing of agriculture will be carried out using the resources of kolkhozes, sovkhoses and other agricultural enterprises and bank credits valued at 12,771,000,000 rubles, or 37.8 percent more than the average annual expenditures during the 10th Five-Year Plan.

The increase in the resources allocated for agricultural development is associated with the increase in purchase prices and with growth in the production volume for agricultural products. The new purchase prices have promoted the creation of normal cost accounting conditions for the work of the agricultural enterprises. In the development of the new purchase prices throughout the republic, a trend has developed towards a more intense differentiation of these prices. Seasonal prices have been introduced for potatoes in the interest of stimulating their storage on farms and more uniform sales to the state. In all, the purchase prices have been raised by an overall annual total of 2.7 billion rubles. Moreover, 65 percent of the funds allocated are to be used in livestock husbandry for the purpose of eliminating its unprofitable status and creating normal economic conditions for reproduction. This will promote an increase in the production of meat, milk, wool and other products. In addition, 6,175,000,000 rubles are being allocated annually for covering the difference between the purchase and intra-republic accounting prices for livestock husbandry products and of this amount -- 4,032,000,000 rubles for beef, poultry, rabbits and fish and 2,185,000,000 million rubles for milk.

It bears mentioning that too detailed a differentiation of the purchase prices would complicate the work of the procurement organizations. Thus the entire redistribution mechanism for levelling off the economic conditions for sovkhos and kolkhoz management is based upon budgetary resources. Thus mark-ups for the purchase prices, using budgetary appropriations, have been established for those low profitability and unprofitable kolkhozes and sovkhoses which operate under poor natural and economic conditions. In the Ukraine, these mark-ups were planned in the amount of 947 million rubles for 1983 and 1984. In the computations for distributing the mark-ups, 4,536 low profitability and unprofitable farms were taken into consideration. During the 1979-1981 period, these farms sustained annual average losses of 598 million rubles. Taking into account the new purchase prices for agricultural products and the increase in production costs associated with the abolishment of compensation for additional expenditures, as a result of the increase in the wholesale prices for industrial products commencing on 1 January 1982, the losses for this group of farms amounted to 193 million rubles in 1983. Thus 198.4 million rubles of the overall total amount of mark-ups was used for covering the losses and the remaining 748.4 million rubles -- for ensuring an identical computed profitability on the order of 16 percent.

In 1983, 821 million rubles or 87 percent of the total amount of mark-ups were allocated for stimulating the production of livestock husbandry products. Of this amount, 309 million rubles were for milk, 361 million rubles -- for beef and 110 million rubles for the meat of hogs. The remaining 110 million rubles, or 13 percent, constituted the mark-ups for field crop husbandry products.

Of the total amount of mark-ups, the plans called for 71 percent to be paid out to kolkhozes, 28 percent to sovkhoses and slightly less than 1 percent to interfarm enterprises. In a computation per farm, the total amount of bonuses amounts to an average of 208,000 rubles, including 186,000 rubles for kolkhozes and inter-farm enterprises and 284,000 rubles for interfarm enterprises. Moreover, it should be noted that the purchase price mark-ups for farms with high loss levels were planned for large amounts. Thus equal economic conditions were created for all groups of farms to a certain degree.

The state is providing the republic's sovkhoses and kolkhozes with a great amount of credit assistance. Thus, during the period following the July (1978) Plenum of the CPSU Central Committee, 619 million rubles worth of loan indebtedness to USSR Gosbank was written off and the payments for loans amounting to 863 million rubles were deferred until 1990.

The increase in purchase prices for agricultural products, the introduction of purchase price mark-ups, the increase in production volumes, the reduction in production costs and the writing off and deferment of bank loans have all had a positive effect with regard to the production-financial activities of sovkhoses, kolkhozes and other agricultural enterprises. In 1983 the procurement plans were fulfilled by all of the oblasts. The plan for the sale of potatoes was fulfilled on the whole throughout the Ukraine and 15 oblasts coped with their tasks for procuring vegetables.

Compared to 1982, gross agricultural output increased by 2.3 percent and at low profitability and unprofitable farms -- by 6 percent. Labor productivity during this period increased by 2.5 and 4.6 percent respectively. Farms in the republic's forest-steppe zone achieved a higher rate of increase in gross output and in the rates of growth for labor productivity, while these indicators declined at kolkhozes and sovkhoses in the steppe zone. They fluctuate substantially by categories of farms and departments.

Compared to the previous year, the monetary earnings from the sale of agricultural products in 1983 increased by 3,930,000,000 rubles. This occurred mainly as a result of the increase in purchase prices (by 2,181,000,000 rubles), the mark-ups added on to the prices for low profitability and unprofitable farms (877,000,000 rubles), the increase in the amount of payment for the 50 percent mark-up for having exceeded the level achieved during the 10th Five-Year Plan (311,000,000 rubles) and also the increase in the purchase volumes for individual types of agricultural products, the changes in their structure and improvements in the quality of the products (561,000,000 rubles). In connection with the abolishment on 1 January 1983 of compensation for the increased cost of industrial output made available to agriculture and also shortcomings in the development of field crop husbandry, the production costs for agricultural products increased by 4.1 percent. As a result, the net income of the kolkhozes and the profits of sovkhoses increased by only 3,198,400,000 rubles compared to 1982 and amounted to 4,782,000,000 rubles. The overall profitability increased accordingly from 8 to 22.2 percent, including for kolkhozes from 6.7 to 24.8 percent and for sovkhoses of all systems -- from 9.8 to 17.1 percent. The low profitability and unprofitable farms for which the purchase price mark-ups were established realized 1,435,000,000 rubles worth of profit compared to 420,000,000 rubles in losses in 1982. Their profitability was 17.3 percent.

The profitability of field crop husbandry increased from 44.6 to 58.4 percent. It increased considerably in connection with sugar beet and potato production and vegetable production became profitable.

The unprofitable status of livestock husbandry was on the whole eliminated. Substantial improvements were realized in cattle husbandry. The kolkhozes and sovkhoses realized 820,000,000 rubles worth of profit from the sale of milk and dairy products and from the sale of beef -- 445,000,000 rubles.

The increase in net income and profit promoted growth in intrafarm savings and in the withholdings for the public consumption funds and material incentives. Thus, in 1983 the kolkhozes supplied the indivisible fund with 1,845,000,000 rubles compared to 752,000,000 rubles during the previous year and the low profitability and unprofitable establishments accordingly -- 623,700,000 million rubles compared to 72,700,000 rubles. In 1983, sovkhoses attached to the UkSSR Ministry of Agriculture realized 608,000,000 rubles worth of profit, or 59.7 percent more than during the previous year. Moreover, the number of unprofitable farms decreased by 138.

The materials of inspections and analyses of reports by enterprises included in the agroindustrial complex of the Ukraine testify to the considerable reserves which are available for use in connection with production and financial activities. Thus, as a result of non-fulfillment of the production plans, the increase in production costs for products, work and services and non-productive expenditures, 30 percent of the enterprises and organizations in the republic's agroindustrial complex underfulfilled their profit plan by 564,900,000 rubles. Strict control has not been established in all areas over the efficient use of available resources or the quality of the products being produced. It is sufficient to state that the losses sustained by sovkhoses as a result of livestock losses, feed overexpenditures and low quality products amounted to more than 84 million rubles. Thus the fulfillment and over-fulfillment of the planned tasks for the production of agricultural products, lowering production costs, implementing improvements in quality and observing a strict regime for thrift constitute an indispensable condition for raising the profitability of the farms.

An important to be followed for improving the production-financial activities of agricultural and procurement enterprises is that of improving the organization and planning for the procurement and sale of products. Some procurement organizations purchase agricultural products in amounts which exceed considerably the population requirements of cities and industrial centers. This leads to spoilage and product losses during storage and transport outside the borders of an oblast and also to sales to kolkhozes and sovkhoses for feeding to livestock and also for sowing. For example, of the 20,900 tons of potatoes purchased in 1982 (mainly in Volyn and Chernigov oblasts) by the Voroshilovgrad and Kommunar fruit and vegetable combines, 1,900 tons were sold beyond the borders of the oblast. Here the losses amounted to 113,000 rubles. The wholesale-retail fruit and vegetable combine of Kiev, during the 1st 6 months of 1983, shipped 9,000 tons of potatoes to kolkhozes and sovkhoses for sowing, 19,300 tons for feeding to livestock, 200 tons to other oblasts of the republic -- overall, 28,500 tons or 67.6 percent of the sales volume for the market fund. The loss -- 2.6 million rubles.



Large reserves are available at the canning plants of the UkSSR Ministry of the Fruit and Vegetable Industry for increasing the production and improving the quality of fruit and vegetable canned goods. During 9 months of 1983, the quantity of rejected canned goods increased here. Moreover, insufficient use is being made of the production capabilities of the canning industry. In this regard, over a period of 2.5 years of the 11th Five-Year Plan the production of canned goods fell short by more than 526 million standard tins valued at more than 100 million rubles. Owing to shortcomings in production organization and in the procurement, storage and processing of goods and also unproductive losses, in 1983 the farms of the UkSSR Minplodoovoshchkhov /Ministry of the Fruit and Vegetable Industry/ fell short in the amount of profit realized by 3.9 million rubles (25.8 percent of the plan).

Reserves for increasing the production of goods and improving their quality are also to be found in other branches of the republic's agroindustrial complex. The food associations and enterprises of the food, meat and dairy and fishing industry are not utilizing fully the opportunities that are available for increasing the production of goods. Not all of the sugar plants or receiving points are making timely preparations for the sugar refining season and, as a result, above-normal losses in sugar are being tolerated in production and also in the sugar content in the molasses.

Some fish combines of Ukrglavrybkhov are not carrying out their planned tasks for the raising of marketable fish in ponds. The available ponds are not being utilized in an efficient manner. In 1983, 7,500 hectares of fattening ponds were not stocked and, as a result, a loss of approximately 130,000 quintals of marketable fish valued at more than 15 million rubles in retail prices was sustained.

The production of goods can be increased through more efficient use of existing capabilities and the timely mastering of newly introduced production capabilities. It is sufficient to state that if the brewing industry had succeeded in achieving the average branch level of use of production capabilities such as that at the Shostka, Chernigov and Simferopol new construction plants, 5.5 million additional decaliters of beer would have been produced and more than 1 million rubles worth of profit and 11 million rubles worth of turnover tax obtained.

It bears mentioning that close mutual coordination is lacking today between the production and financial plans of agricultural enterprises and enterprises of those branches which provide services for agriculture and this is adversely affecting the development of the agroindustrial complex. Thus the UkSSR Ministry of Procurements has not adequately coordinated the plans for the production and sale of sovkhoz and kolkhoz grain crops with the tasks for placing in operation capabilities for the procurement, storage and processing of grain products. In 1983 the capital investment plan was not fulfilled for 14 objects. Owing to a shortage of capacities at some grain receiving enterprises, a portion of the grain was stored on open platforms and this led to a deterioration in quality and to spoilage of the grain products.

It is believed that the enterprises of Goskomsel'khovtekhnika for the UkSSR must reorganize the work of providing material-technical support and services for agricultural production, while taking into account the requirements of the agroindustrial complex. Low quality equipment repair work cannot be tolerated

and the requirements of consumers for machines, assemblies, spare parts and other goods of a production nature must be studied more completely. Today, owing to shortcomings in this work, the enterprises of UkSSR Goskomsel'khoz-tekhnika are tolerating the existence of above-normal supplies of commodity stocks. In addition, greater attention must be given to raising the level of economic work and ensuring the availability of sound, stable and realistic plans, since some enterprises are over-fulfilling to a considerable degree their profit plans while others are not fulfilling them.

In order to eliminate the mentioned shortcomings, it is our opinion that a single production-financial plan should be prepared for the republic's agroindustrial complex, with a breakdown both by branches and by territory. This will make it possible to bring together in a single entity the production-financial activities of all branches of the agroindustrial complex. It will then become possible to find new reserves and to eliminate inter-departmental operations and this in the final analysis will promote an improvement in the efficiency of agricultural production. However, the preparation of a single production and financial plan for the republic's agroindustrial complex is possible only upon the condition that all branches of the agroindustrial complex are subordinate to the one administrative center -- the UkSSR Council of Ministers.

The Food Program includes not only measures for further increasing the volumes for the production and processing of agricultural products, but also a system of measures for satisfying to a better degree the socio-cultural requirements of the agricultural workers. In particular, those kolkhozes which have insufficient fixed capital and which lack internal resources for expanded reproduction are covered by the system in effect at sovkhoses for the financing, by means of state budgetary funds, of the planned expenditures required for the construction of housing, children's pre-school institutes, clubs, pioneer camps, installations of a cultural-domestic nature, for making insurance payments and for other purposes within the norm limits established for state agricultural enterprises. Towards this end, the 1983 plans for the Ukrainian SSR called for the use of 724.8 million rubles, 23.1 percent of which was to be used for the construction of non-productive installations, 15.2 percent -- for the installation of intra-farm roads, 13.2 percent -- for the maintenance of children's pre-school and cultural-educational institutes and 48.5 percent -- for making insurance payments. Thus, considerable monetary funds were allocated for satisfying the socio-cultural requirements of rural residents. Moreover, up until the end of the current five-year plan, the plans call for 724.8 million rubles to be allocated annually for the mentioned purposes. The task consists of ensuring that these resources are utilized in an efficient manner.

In 1983, use was made of 96.5 percent of the monetary funds allocated for improving the cultural-domestic requirements of kolkhoz members. The principal reasons for incomplete use of the funds -- shortcomings in the preparation of planning documentation for the construction of the projects planned, difficulties in the selection of contractors and in drawing up agreements with them and also a number of other reasons. For example, as of 1 October 1983, owing to a lack of construction materials and agreements with contractors, construction had not yet commenced on 19 projects on farms in Vinnitsa Oblast, with the estimated



cost of these projects being 332,000 rubles. Similar situations prevail at a number of kolkhozes in Dnepropetrovsk, Khmel'nitskiy, Odessa and some other oblasts. In addition, checks carried out by the UkSSR Ministry of Finances have shown that funds allocated from the state budget for covering planned kolkhoz expenditures quite often are not being used for the special purpose intended. For example, 30,000 rubles were allocated for the construction of intra-farm roads at the Progress Kolkhoz in Bolgradskiy Rayon in Odessa Oblast. However the project was not included in the construction plan and the appropriations allocated, in the amount of 29,400 rubles, were used for liquidating the indebtedness associated with construction work carried out in past years.

It is our opinion that standard plans must be introduced into agricultural construction practice on a more extensive scale in order to eliminate the mentioned shortcomings. This will make it possible to accelerate the planning-research work and the construction process and it will also serve to reduce the cost of such work. In addition, USSR Gosbank should ideally be prohibited from accepting from kolkhozes, for the purpose of liquidating indebtedness, budgetary appropriations intended for the financing of planned expenditures.

In the final analysis, more efficient use of the budgetary funds allocated for the financing of planned kolkhoz expenditures will promote improvements in the efficiency of agricultural production.

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## AGRICULTURAL MACHINERY AND EQUIPMENT

### TECHNICAL REQUIREMENTS FOR PLOWS REVIEWED

Moscow SEL'SKAYA ZHIZN' in Russian 18 Jul 84 p 2

/Article by N. Burchenko, department head at the All-Russian Scientific Research Institute for the Mechanization of Agriculture: "What Plows Are Required for a Farmer"/

/Text/ A modern plow must satisfy many requirements: it must ensure high quality plowing with furrow slice inversion and crumbling of the soil and complete covering over of the plant residue with minimal expenditures of energy; it must be reliable of operation, easy to service and compatible with tractors; there must be a good selection of units for operations under various conditions. Industry is supplying agriculture with an entire family of standard three, four, five, six and nine-unit general purpose plows. These units have many fine qualities. But there is one requirement which they by no means always satisfy. At times these plows are not reliable during operation.

This has been mentioned repeatedly in articles published in SEL'SKAYA ZHIZN'. It has been borne out during the control testing of plows at machine-testing stations, which revealed a number of production shortcomings -- low quality welding, the full service life of the plowshares, bars and frames is not being realized and so forth.

The agronomic science long ago proved the advisability of equipping the plows with various interchangeable units and a practical solution was achieved by the design organizations. It has been established that in order to raise the quality of plowing operations in all of the soil zones, and there are approximately 50 varieties of soil throughout the country, the modern plows must be equipped as follows: cultivation units for plowing old arable light-textured and medium dense old arable soils, semi-screw -- for plowing weakly-grassed soils following annual grasses and fields having a large amount of plant residue on the surface; screw types -- for plowing strongly-grassed soils, long fallow land and soils following perennial grasses for the cultivation of flax and other crops; cutting types -- for plowing soils having a shallow humus layer when cultivating loamy soils. The use of various types of units makes it possible to raise the quality of the plowing and the cropping power of the fields.

Cultivation, semi-screw, screw, cutting, non-mouldboard with subsoil attachments and other units with a wide cut of 35 centimeters were created long ago in our country, they have undergone state testing and have been recommended

for production and even included in the registry book. But industry is supplying agriculture only with units of the cultivation type and only for operation at speeds of 9-12 kilometers per hour or for speeds of 6-9 kilometers per hour. Complete deliveries of the entire set of units required has not yet been organized. And hence we are encountering many problems in the plowing of land.

Thus, with cultivation units being employed on heavy-textured soils for speeds of 9-12 kilometers per hour, the wheeled tractors are beginning to skid, the movement of the units is slowing down and a deterioration is taking place in the furrow slice inversion and in covering over the plant residues. This is being observed especially frequently during the working of heavy-textured soils on farms in the central chernozem zone.

When heavy cultivation units are employed on light and medium dense soils, the productivity of the unit is lowered and the power and fuel expenditures increase.

A chronic shortcoming of wheeled plowing units is the disparity between the width of the plow's cut and the width of the tractor track. As a rule, the tractors have a track width that is wider than the width of the plow's cut. The ganging of such a narrow-cut plow with a wide tractor is difficult. During operation of the plowing unit, the plow often turns towards the non-plowed field and this results in incomplete turning over of the furrow. Such tractors as the T-150K is ganged satisfactorily with the PLP-6-35 plow during work carried out on light and medium-dense soils. The plowing is carried out well, but when the work is carried out on heavy-textured and solid soils the machine operators must remove one or two units and then the plow cannot be connected up correctly to the tractor.

In order to ensure that a narrow-cut plow does not carry out removing work, the designers were forced into installing wide grass boards on its units and this lowers the effectiveness of the furrow slice inversion work. As a rule, the tractive resistance of units which have wide grass boards is 5 percent greater than is normally the case.

The farmers are quite justified in considering the caterpillar tractor to be the best means for carrying out plowing in our country. Unfortunately however, the industrial workers share another opinion in this regard. How else can you explain the fact that the plowing of fields is still being carried out using the wheeled T-150K and K-701 tractors and obsolete models of low-power caterpillar tractors. And still agriculture is not being supplied with the promising T-150 and DT-75C caterpillar tractors, which were created and recommended for production long ago. At the same time, the kolkhozes and sovkhozes are being supplied with greater quantities of wheeled machines.

Of the two tractors (wheeled T-150K and caterpillar T-150) which were simultaneously recommended for production at the beginning of the 1970's, only the wheeled version was assigned to the production line. And every farmer is aware that the caterpillar tractors have considerably smaller wheel tracks and skid to a far less degree. Moreover, they can be ganged very easily with plows and they can operate out on the fields under high soil moisture conditions. These machines ensure very satisfactory operation of the plow units, not only on light but also on heavy-textured soils and at higher speeds.

A great deal has been said regarding the quality of plow manufacturing. The time is now at hand for solving the problem. Unfortunately, the best types of steel are not being used at the present time in the manufacturing of general purpose plows, despite the fact that such steels are available to our metallurgical industry and even though it is known that the plowing of soil is the most energy-intensive operation in field crop husbandry. Thus the working organs and the plows themselves are being subjected to tremendous workloads. In order to increase the strength of a plow made out of low-grade metal, the designers are being forced into increasing the size of the parts and this in turn leads to an increase in the metal-intensiveness and in the cost of the implement. Thus it is apparent that a savings in the use of good metal results in the final analysis in excessive expenditures.

It is known that in order to reduce the energy-intensiveness of soil cultivation, the tractive resistance of the plowing units must be lowered. This can be achieved by various means. This includes good cultivation, grinding the surface of the mouldboards and self-sharpening of the plowshares. For lowering specific resistance, use is made of ground mouldboards made out of hard steel, which neither seals nor clogs up with plant residues on damp and coherent soils and rusts practically not at all. The use of ground mouldboards lowers the resistance of the plows to 10 percent. But up until now the mouldboards of the units have not been ground and the frequency of their processing is no different than the frequency for rolled metal. At plants which produce plows, it is assumed that the grinding of the mouldboards is not mandatory and that they must be ground by the soil during operation. But since this part is made of poor metal, its surface, due to the abrasive effects of soil particles, becomes more rough and this increases the resistance.

In order to reduce the sealing and, it follows, to lower the tractive resistance of the plows, it is recommended that the mouldboards be provided with a polymer covering. Studies have shown that the covering of mouldboards with polyfluoroethylene resin makes it possible to lower the tractive resistance by 20-25 percent. This is a task for the chemical industry, since it must develop a durable polymer material.

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## AGRICULTURAL MACHINERY AND EQUIPMENT

## PREPARATION OF EQUIPMENT FOR 1985 WORK REVIEWED

Moscow TEKHNIKA V SEL'SKOM KHOZYAYSTVE in Russian No 12, Dec 84 pp 3-4

[Article: "Preparing Equipment for Field Work On Schedule and With Good Quality"]

[Text] The communist party and Soviet government exhibit constant concern about the development of agriculture. Enormous capital investments and material resources are earmarked for the development of production capacities of all branches of the agro-industrial complex.

In agriculture today there are over 3 million tractors, 1.7 million trucks, 794,000 grain-harvesting combines and a great deal of other equipment. Energy capacities of agricultural production exceed 514 million kilowatts and the energy available per worker equals approximately 22 kilowatts.

The quality composition of the machine-tractor fleet has changed considerably. The proportion of modern powerful machines and their technical level have increased.

In order to increase the effectiveness of utilizing the machine-tractor fleet of kolkhozes and sovkhoses measures are being implemented to develop the engineering-technical service in the village, to supply highly trained cadres of machine operators and to create the necessary conditions for labor productivity. Enterprises are creating engineering-technical complexes with a repair-service base and machine yards. There has been a significant growth in the production capacities of enterprises and organizations belonging to USSR Goskomsel'khoshtekhnika [State Committee for Supply of Production Equipment for Agriculture].

As a result, in recent years we have noted a persistent tendency toward increasing the daily output of machines, improving the quality of mechanized operations and curtailing fuel consumption. The level of readiness of equipment for seasonal field work has improved and the duration of operation of many machines exceeds the norm.

An important role in implementing the goals set before agricultural workers by the 26th CPSU Congress and preceding Plenums of the Central Committee is attributed to socialist competition. It has become a tradition in the village



to compete for the early and high-quality preparation of equipment and for the organization of model equipment storage and use.

The initiative of machine operators and engineering-technical workers within agriculture in Azerbaijan SSR and Voroshilovgrad, Kustanay, Minsk and Saratov oblasts relating to the preparation of equipment for field work in 1984 has found widespread support in all of the country's republics, krays and oblasts. The initiators of all-union competition have successfully fulfilled their socialist obligations. Many enterprises in the RSFSR, the Ukrainian SSR and the Belorussian SSR have completed machine repairs in an organized manner and with high quality. Here as of 1 January 1984 the line of readiness included 95-99 percent of plows, sowers and cultivators. In the kolkhozes and sovkhozes of the Georgian, Latvian, Armenian and Estonian union republics 72-89 percent of grain-harvesting combines were ready for work by this date and equipment for feed procurement was being readied successfully.

In the country as a whole the readiness of the tractor fleet for field work equalled 93 percent; 98-99 percent of machines were ready for spring field work, as were 92-93 percent of mowers-crushers and rakes, over 95 percent of grain-harvesting combines and 92-94 percent of special combines.

However, the experience of leaders has not yet become the norm for everyone. In some republics there have been instances of serious shortcomings in the organization of equipment repair and controls over the course and quality of repairs are being implemented poorly. As a result a significant number of powerful tractors, feed-harvesting and beet-harvesting machinery, potato-harvesting combines, trucks and trailers were not readied for field work. Due to technical problems resulting from poor-quality repairs the level of idleness of the machine-tractor fleet remained high.

Repairs of equipment were carried out with a violation of technical requirements in a number of enterprises of Novgorod, Ivanovo, Orlov, Mogilev and Vitebsk oblasts, the Kalmyk ASSR, Uzbek SSR, Kazakh SSR, Kirghiz SSR, Moldavian SSR and Turkmen SSR. There have been serious complaints about the quality of machine repairs in the enterprises of Sel'khoztekhnika [Agricultural Equipment Association] of Kirov, Kursk, Transcarpathian, Zaporozhye, Ivano-Frankovsk, Poltava, Syr-Darya and Dzhizak oblasts, Karakalpak ASSR and Tajik SSR.

Machine yards are acquiring more importance in improving the preservation of equipment and in raising the effectiveness of its use. Practical experience shows that in places where the necessary base exists for storing technology and where a technical service has been organized the level of technological readiness is always higher. Detskosl'skoye Production Association of Leningrad Oblast can serve as an example. Here all the necessary conditions have been created for the storage of tractors and agricultural machinery; each year equipment is ready long before the start of field work. This enterprise achieves a significant economy of resources during repairs and a high daily and seasonal output per machine.

While expressing concern about the harvest during the decisive year of the 11th Five-Year Plan, machine operators and engineering-technical workers of kolkhozes, sovkhoses and interfarm associations and enterprises of Sel'khoz-tekhnika of the Lithuanian and Armenian SSR's and Andizhan, Lipetsk and Pavlodar oblasts have taken upon themselves increased obligations related to achieving the timely and high-quality preparation of agricultural equipment for field work in 1985, to its dependable storage and to economizing on material-technical resources. Their initiative and socialist obligations have been approved by the boards of the USSR Ministry of Agriculture, the USSR Ministry of the Fruit and Vegetable Industry, the USSR State Committee on Production-Technical Supplies to Agriculture and the Presidium of the Central Committee of the Agricultural Workers' Trade Union.

It is important that the initiative filter down to every enterprise and repair shop. Competition should be started simultaneously among oblasts, rayons, enterprises, labor collectives and individual workers. The course of socialist competition must be widely illuminated in mass information resources. Victors must fully utilize established measures of moral and material stimulation.

At the present time equipment is being delivered for storage; defects are being detected and an evaluation of the technical condition of machines is being made. Tractors, complex agricultural machines, networks and units for them which require capital repairs are being brought to technical exchange points. Repair work has begun.

During the fall-winter period kolkhozes, sovkhoses, interfarm enterprises and production associations of Soyuzsel'khozkhimiya [All-Union Agricultural Chemical Association] and the repair enterprises of Goskomsel'khoztekhnika must repair about 1.2 million tractors, 1.5 million soil-cultivating and sowing machines, over 0.6 million grain-harvesting combines and a great deal of other equipment.

The engineering-technical services of enterprises and repair enterprises of Sel'khoztekhnika must adhere strictly to repair schedules, adhere to contractual obligations and eliminate cases of premature capital repair of machines, networks and units. Machines involved in accidents or those that have not worked out periods between servicings must be submitted for repairs according to an established single order upon approval by the rayon service of Gossel'tekhnadzor [State Inspectorate on Control of the Technical Condition of the Machine-Tractor Fleet of the RSFSR Ministry of Agriculture].

Special attention must be given to the quality of repair work. The quality of repaired machines must become one of the main indicators in evaluating the work of the worker, brigade, shop and repair enterprise. It is essential that there be normative-technological documentation, the required repair equipment, units, measuring instruments and efficient organization of labor in every place of work.

The most qualified cadres should be recruited for equipment repair, the necessary conditions must be created for them to be able to perform their work

efficiently and with high quality, and collective forms of labor organization and wages must be introduced more extensively.

Responsible tasks involving achieving rhythmic work in repair shops and plants stand before industrial enterprises which supply agriculture with spare parts and repair materials. Strict adherence to the schedule, nomenclature and volume of deliveries and to supply schedules for kolkhozes and sovkhozes must be carried out.

The restoration of worn parts is a great reserve for satisfying the needs of enterprises and repair shops for spare parts as well as a reserve for decreasing equipment-repair expenditures. In connection with this it is essential to more fully utilize the production capacities of specialized sections and shops in the enterprises of Sel'khoztekhnika and to more widely introduce progressive technology.

Technical exchange points must strive to supply enterprises with repaired networks and units on the day the repair fund is submitted.

In connection with this the work experience of technical exchange points in Azovskiy Rayon Sel'khoztekhnika of Rostov Oblast, Belozerskiy Rayon Sel'khoztekhnika of Kherson Oblast, Zhelayevskiy Rayon Sel'khoztekhnika of Ural Oblast and Tukumskiy and Tsesisskiy rayon sel'khoztekhnikas of the Lithuanian SSR and others is deserving of dissemination.

Nevertheless, in many places technical exchange points do not have networks and units at their disposal in the required nomenclature; the demand of kolkhozes and sovkhozes for these is not being met.

The organization of guaranteed servicing of new equipment requires improvements. There are frequent cases in which plants-manufacturers deny their guilt without basis with regard to the breakdown of machines and do not act on the complaints of enterprises. In connection with this it is essential to strengthen the role of the special service of Sel'khoztekhnika and to provide it with highly-trained cadres.

The effectiveness of utilizing the machine-tractor fleet depends to a great extent on the organization of technical services. It is important to prepare all mobile means of technical services, diagnostic equipment and repair units and to provide trained master-adjusters for the specialized service.

Simultaneously with the preparation of equipment we must organize mass education and upgrade the training of cadres of machine operators in village vocational-technical schools, teaching centers and in courses and schools of rayon associations of Sel'khoztekhnika and enterprises with the goal of achieving two-shift work during more intensive periods.

Little time is left until the entry of units into the fields. This is why not a single hour must be lost in preparing the machine-tractor fleet. The first obligation of directors and engineering-technical workers of agro-industrial

associations is to create all of the necessary conditions for the timely, high-quality preparation of equipment and to achieve its uninterrupted operation in the field. The fulfillment of tasks and accepted obligations by all collectives will be a worthy contribution toward fulfilling the country's Food Program.

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## AGRICULTURAL MACHINERY AND EQUIPMENT

### PROVISION OF COMPLETE SETS OF AGRICULTURAL EQUIPMENT EMPHASIZED

Moscow SEL'SKAYA ZHIZN' in Russian 5 Jan 85 p 2

[Article by A. Popov: "Delivering Equipment in Complete Sets/From a Meeting of the Scientific-Technical Council of USSR Goskomsel'khoztekhnika [State Committee for Supply of Production Equipment for Agriculture]]"

[Text] With each passing year the energy supplies of Kolkhoz imeni Karbyshev of Mostovskiy Rayon continue to increase. Today it has over 100 tractors, 35 combines and many other machines. Last year the output per standard tractor reached about 2,000 standard hectares. This is 300 hectares more than at the beginning of the five-year plan. Expenditures for cultivating 1 hectare decreased by 15 percent.

These are good indicators. They attest to the fact that in the kolkhoz equipment is utilized effectively. There are many such enterprises in the rayon. But this does not at all mean that all reserves have been exhausted here. Industrial enterprises still supply too few trailer and tractor-mounted machines. The local raysel'khoztekhnika [Rayon Agricultural Equipment Association] was forced to take this problem upon itself. Its shops make attachments for shipping crushed feeds, rakes-tedders, chisel-cultivators and harrows. Many other raysel'khoztekhnikas of Grodno Oblast have been able to organize complete deliveries of new equipment to kolkhozes and sovkhoses as a result of this.

On the whole the enterprises of BSSR Goskomsel'khoztekhnika last year manufactured 1,500 broad and 1,000 chisel cultivators, 3,000 ZhSK-4A reapers, 4,000 GVTs-3 rakes-tedders and a great deal of other technology. A list has been developed with norms for all machines that will be used to equip tractors of all brands. An effective follow-up on this list has been organized in all raysel'khoztekhnika's. Special cards have been put into use which reflect the course of equipping the tractor fleet with a group of machines in every enterprise. Orders are made and funds are distributed in accordance with equipping norms and with a consideration of existing technology. This is facilitated by the introduction of automated systems of managing material-technical supply. All raysel'khoztekhnikas are being equipped with the new computer technology of the Robotron-1840 and Robotron-1720 type.



Grodno Oblast Sel'khoztekhnika is widely utilizing the means of scientific-technical information and propaganda, organizes exhibitions and shows of operating machinery, teaches machine operators of enterprises effective methods for operating equipment, controls the quality of products arriving from plants and services equipment during the warranty period.

Every K-701 tractor sold by raysel'khoztekhnika to kolkhozes is equipped with a Z-PTS-12 trailer, PGP-7-40 plow or a PTK-9-35 plow, a heavy disc harrow, and one machine for the application of organic fertilizer with a capacity of 16 tons. T-150K tractors are supplied with a 1-PTS-9 trailer, a PKG-5-40 plow for rocky soils or a PLN-5-35, one heavy disc harrow (for every third tractor), one machine for applying organic fertilizers (PRT-10, RZhT-8 or KhTS-10027) and a KShP-8 broad cultivator for thorough soil cultivation (on every second tractor).

The work experience of Grodno Oblast Sel'khoztekhnika attests to the fact that the introduction of complete sets of machines for kolkhozes and sovkhoses encourages a significant improvement in the end results of agricultural production. In 1984 oblast enterprises produced 28.4 quintals of grain per hectare, 314 quintals of sugar beets and 404 quintals of root crops.

There are things that can be learned from the farmers of Grodno Oblast. It is no accident that the meeting of the Scientific-Technical Council of USSR Goskomsel'khoztekhnika, at which the subject under discussion was ways to improve the supply to agriculture of complete sets of equipment and the efficient development of the machine-tractor fleet, was held here. The speeches of the meeting's participants attest to the fact that this problem is of national significance.

In his speech the Director of the All-Union Scientific-Research and Planning Institute on the Organization, Economics and Technology of Material-Technical Supplies to Agriculture, A. V. Kalashnikov, emphasized that in the majority of enterprises in the country the supply of a group of machines for powerful tractors is half the optimal. This is why daily and annual output of these tractors remains at 1980 levels. One of the hindrances in equipping tractors with trailers and mounted technology is the order in effect today for distributing this equipment. Funds for agricultural machines, which are used for equipping powerful tractors, are distributed by Goskomsel'khoztekhnika prior to the start of the coming year and tractors themselves are distributed 4-5 months late by ministries and departments. Because of this confusion develops with regard to writing orders and the principle of completeness of material-technical supply is violated.

One-time deliveries of powerful tractors to supplement an old fleet or to replace written-off equipment also is detrimental to the situation--instead of the expected increase in effectiveness of mechanized operations there is a decrease. Considering the fact that the normal length of service of K-700, K-701 and T-150K tractors equals 10 years whereas that of plows and trailers--6-8 years, agriculture should receive 1.2 times more of this equipment than tractors each year. In practice the opposite is true. More powerful machines than plows and trailers for them are manufactured.

The chairman of Grodno Oblast Sel'khoztekhnika, M. A. Shumskiy, feels that the quality of machines manufactured by industry does not allow us to achieve our best results.

Often we send cultivators, plows, sowers and rotor mowers directly from the plant to our shops to correct existing defects. In 1984 alone plants-suppliers were issued fines of 300,000 rubles for poor-quality work and over 100,000 rubles for rejection of equipment during its warranty period.

The chairman of Oktyabr' Kolkhoz of Slonimskiy Rayon, K. B. Khorunzhiy, feels that it is not enough to simply increase the amount of equipment in enterprises--it is necessary to develop a system of mechanization which would achieve fluidity and comprehensiveness in all agricultural operations. We need technological flow lines that will secure the cultivation and harvesting of agricultural crops with minimal use of manual labor.

Participants in the meeting of the Scientific-Technical Council of USSR Goskomsel'khoztekhnika worked out recommendations, the basis of which is the experience of the collectives of Grodno Oblast with regard to developing an efficient structure for the machine and tractor fleet, deliveries of complete equipment sets to kolkhozes and sovkhoses and more effective use of equipment on fields and farms. Our goal is to implement these recommendations.

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## AGRICULTURAL MACHINERY AND EQUIPMENT

### TRACTOR BUILDING PROBLEMS SET FORTH

Moscow TRUD in Russian 18 Oct 84 p 2

[Article by M. Runchev, academician of VASKhNIL [All-Union Academy of Agricultural Sciences imeni V. I. Lenin] and Director of the All-Russian Scientific-Research and Planning-Technological Institute of Mechanization and Electrification in Agriculture and by B. Zemlyanskiy, director of the institute's department of field-crop cultivation and candidate of technical sciences, Zernograd, Rostov Oblast: "Why the Tractor Is Idle"]

[Text] When tractors proliferated but there were few attachments for them, machine operators were ridiculed--your tractor fulfills only one operation in the field, they were told--it rests.

A great deal of time has passed since then and many types of units have appeared--sowers, plows and cultivators. Still tractors remain idle all too often.

Whereas at one time the object of one's fantasies was a tractor that could pull a plow or harrow, now the time for single machines has passed. Powerful and energy-saturated tractors have appeared with which it is possible to utilize the entire selection of essential farming equipment. Labor productivity has increased on the basis of the increased broadness of machines and of increased speeds. But it turned out that here there are also limits. Attempts to develop broad combination units with powerful tractors using the traditional scheme, i.e. by simply increasing the width of individual machines and by increasing their number on hitches, demonstrated the lack of success and unpromising nature of this path. When there are too many of them, units work without stability and the quality of the operation suffers.

Finally, there is a sharp increase in labor expenditures for the preparation and composition of units. For example, a brigade of 3-4 persons spends over 2 hours per unit to rearrange 3-4 cultivators or 4-5 sowers attached to an SP-16 hitch in order to change over from a transport to an operating mode. The field waits and the tractor remains idle.

Naturally this is why the question arose about developing a complex of broad, hitchless standard machines for tractors that fall into different load categories. Specialists from our institute analyzed thoroughly the mechanized

technologies for cultivating our main crops in the steppe region of the country, the tendencies in the development of foreign technology and the advantages and shortcomings of existing schematic and design decisions and came to the conclusion that the most efficient elaboration of technological complexes of machines involves interchangeable working organs. Moreover, standardization must encompass every element not only in terms of tractors of different load categories but also in terms of groups of machines for various operations-- stubble breaking, surface cultivation, harrowing and the sowing of grains, spike crops and intertilled crops (separately). As a result our institute proposed a technical decision that was new in principle with regard to the production of such standardized broad machines for new tractors of different classes. The Joint Scientific-Technical Council of three interested parties-- USSR agriculture, tractor and agricultural machine building and USSR Goskomsel'khoztekhnika [State Committee for Supply of Production Equipment for Agriculture]--which took place in November 1979 in Zernograd recommended that design organizations take these recommendations into consideration when developing promising agricultural machinery. Almost all head specialized design buros of tractor and agricultural machine building began work on the new machines.

The beginning is not a bad one, but the impression has been created that this beginning may last for a very long time. Here is why. The development of new and standard machines and tractors for which the machines are earmarked is beginning to slide. Once again the danger arises of incomplete deliveries of new technology to enterprises, which already has brought considerable losses during the 1970's.

Another old "disease" is having an effect--tractor builders prefer to modernize existing machines by gradually increasing their capacity instead of developing new models by sharply increasing their power two or threefold. Here is an obvious example. DT-75, DT-75M, DT-75MN--this was the course of modernization of a tractor well-known to machine operators; capacities were added at the rate of 15-20 horsepower. The Kirovets gathered strength slowly like this as well. Here is the result--difficulties with spare parts and the necessity each time to create a new series of servicing machines due to changes in design and even in the basic parameters of the tractors. Judge for yourselves--the DT-75 tractor had an SMD motor of one size, its more modern DT-75M brother had a motor of a totally different design so that each needs its own spare parts, which are not interchangeable.

And here is another equally striking example. The Kirovets K-700 with a capacity of 220 horsepower had a more or less integrated, if insufficient, complex of basic machines (an 8-base plow, 4-cultivator and 4-sower units). The old plow is not suitable for the modernized K-700 A and K-701 tractors, which are more powerful by 55 horsepower; the quality of plowing leaves something to be desired. Industry has not yet provided something new; the earlier cultivators and sowing units are also too small for the new Kirovets. The powerful machines, on the production of which millions of rubles were spent, are forced to remain idle.

Meanwhile, the new T-150 caterpillar tractors were received by enterprises only this year, in 1984, although their production was to start in the 1970's by Khar'kov Tractor Plant. Until now the manufacture of the DT-75 C (rapid) caterpillar tractor has not been assimilated by the Volgograd Tractor Plant despite the fact that it has passed all types of state tests and was recommended for production. Work on the T-250 caterpillar tractor has not even begun even though it, like many others, has been included in the state document--"Machine System for 1981-1990"--which must be carried out on a mandatory basis.

The development and production of new mobile and energetic resources--tractors and a selection of machines for them--are slowing down and being rescheduled for a later time. These were the ones that were to be produced with a greater degree of standardization. Let us remember that they were approved by representatives of three ministries--the participants in the 1979 conference of the Joint Scientific-Technical Council. In its time the development of a class 8 tractor--a powerful one with a large load capacity--and the selection of machines for it were given the most careful attention and things went smoothly. The initial selection of equipment for it includes over 25 items (soil-cultivating and sowing machinery, technology for applying all types of fertilizers, transportation trains). It would seem that farmers could be pleased. All protocols and work programs related to this tractor and its adjunct machinery were confirmed by the deputy minister of tractor and agricultural machine building. Thus, they acquired the force of law. But then suddenly work programs began to dry up like leather--first the list was curtailed from 25 to 18, then to 11, and then in 1983 the deputy minister of tractor and agricultural machine building, G. S. Kirichenko, excluded all machines for this tractor down to the last one from plans of work for the design buro.

Why do things like this happen? Because of the absence of effective coordination of operations on the part of head organizations of the USSR Ministry of Tractor and Agricultural Machine Building. Another reason is the deflection of designer's efforts and production capacities to modernize the series of equipment that is being manufactured. But after all the existing types of tractors do not satisfy the requirements for preserving soil fertility, for fuel economy and for curtailing the need for human resources.

The extent of the importance to agriculture today of the problem of acquiring new, highly-effective tractors is attested to by the recent meeting of the Politburo of the CPSU Central Committee, which passed a resolution on increasing the output of new, standardized tractors.

The USSR State Committee on Science and Technology, the USSR Ministry of Agriculture and the USSR Ministry of Tractor and Agricultural Machine Building adopted a program for the 11th Five-Year Plan to complete work and conduct reception testing of main-brand tractors and the selection of machines used with them, of which we have spoken above. In addition, who but they should concern themselves in a business-like manner with implementing the indicated program of reequipping agriculture? Much has been written and said from the



tribunes of various conferences and meetings about thorough planning of work to develop new technology--from research testing to delivery to production and to its introduction in the national economy. This involves precise distribution of work and responsibility for its fulfillment by specific parties, daily accounts of that which has been accomplished and strict demands with regard to executing that which has been indicated. Thorough planning must finally be implemented. State standards are essential during the planning of agricultural technology--they are the basic requirements for the parameters of agricultural machinery that will exclude different solutions and that will really secure the standardization of agricultural technology.

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## TILLING AND CROPPING TECHNOLOGY

UDC 632.9:633.11

### WINTER WHEAT TREATMENTS IN ODESSA OBLAST

Moscow ZASHCHITA RASTENIY in Russian No 1, Jan 85 p 11

/Article by V.T. Pykhova, senior scientific worker at the Odessa Agricultural Experimental Station: "Complete Treatment of Winter Wheat"/

/Text/ In Odessa Oblast the sowings of winter wheat are still badly contaminated by weeds in the autumn -- winter cress, seedlings of windfall peas and also hibernating and root-sucking weeds -- bindweed, sowthistle, hedge mustard, shepherd's purse, scentless mayweed and others. The degree of contamination increases sharply during years marked by prolonged damp and warm autumn periods, with the number of weed seedlings reaching 180-200 and in some instances 400 per square meter.

Chemical weed control work is usually carried out on the sowings during the phase of complete tillering, in the spring. In recent years, data has appeared on the possibility of using herbicides of the 2.4-D group during the autumn period and yet the dosages and the periods for using these preparations remain unclear. The effect of amine salt 2.4-D on winter wheat during its early periods of development has not been studied and the peculiarities of autumn treatments of sowings under various climatic conditions have still not been disclosed.

In the southern and central rayons of Odessa Oblast, prior to the end of the third 10 day period in October, when winter wheat is in the tillering phase, the larvae of grain flies and grain beetles begin to hatch and suctorial pests appear -- aphids, cicadas -- and the development of root rot, powdery mildew and blight commences. During tests carried out in previous years, we were able to establish the fact that foliar top dressings of nitrogen fertilizers suppress the development of root rot and promote increases in the winter wheat yields.

Taking into account the favorable action of each method, we decided to combine chemical weed control with treating the sowings against pests and providing a foliar top dressing. In 1979 and 1980, from 18 to 20 October, we treated the winter wheat varieties Odesskaya 51 and Odesskaya Polukarlikovaya, which were sown from 10 to 15 September following peas and bare fallow, with the following mixture: amine salt 2.4-D (1; 1.5; 2 and 2.5 liters per hectare), 20 percent metaphos (2 liters per hectare) and ammonium nitrate or urea (15-20 kilograms per hectare). The working liquid consumption -- 300 liters per hectare.

This all-round treatment promoted improved plant growth and considerable reductions in the contamination of the fields, in the number of pests and in the disease infection of plants. Weed destruction was observed on the third day following treatment: hedge mustard, winter cress, windfall peas, nightshade and shepherd's purse were completely destroyed and bindweed -- 80-85 percent destroyed.

During a year marked by a damp autumn, when the principal bulk of the weeds germinated prior to treatment, the wheat sowings remained free of weeds up until the end of the growing season with the exception of wild oats, the number of which is not very great on our fields. If the autumn was dry (1979), new weed seedlings appeared in the spring and yet their number was less by a factor of 3-4 than on untreated tracts. All of them were in the lowest stage of the plant stand and by the end of the growing season they had inflicted no damage.

The numbers of grain flies and grain beetles decreased by 40-60 percent and almost no grain aphids or other suctorial insects were encountered on the treated sowings. If the grain beetles hatched during the crop spraying period, then the mixture was very effective against this pest. On fields of the experimental station, where in 1980 all of the sowings were treated during the autumn, almost no damage to the plants by the grain beetle was observed.

By the end of the autumn growing period, the coefficient of tillering for the treated plants had reached 4.2-4.7, a more powerful root system had developed than was the case for untreated plants, the color of the leaves was an intense green, signs of root rot infection were not apparent and powdery mildew was noted on only individual plants. The plants on untreated tracts turned yellow in color, some lower leaves died off, powdery mildew appeared and there was damage caused by root rot (14-27 percent and at times up to 60 percent), grain flies, aphids and other pests. The degree of contamination of the sowings was high, the coefficient of tillering was 3-5.3 but with a lesser number of productive stalks and the root system was noticeably weaker and shorter.

Early treatment of the sowings with the mentioned mixture, prior to the appearance of the secondary root system and during the phase of 3-5 leaves, led to suppression of the plants, dwarfness, twisting of the stalks and ears and a reduction in yield of 2-5 quintals per hectare.

When the treatment was carried out during the period from the third decade in October to the middle of November, by which time the coefficient of tillering was 3.5-4 and the secondary roots had developed by not less than 1.5-2 centimeters, the yield was higher by 4-7 quintals per hectare than that for untreated sowings and 2-5 quintals per hectare higher than the yield obtained following a spring treatment.

Amine salt 2.4-D, when applied at the rate of 2.5 liters per hectare, served to suppress the plants somewhat and no increase in yield was noted compared to a spring treatment.

The best mixture: 40 percent amine salt 2.4-D, 1.5 liters per hectare + 20 percent metaphos, 2 liters per hectare + urea or ammonium nitrate, 15-20 kilograms per hectare. In the event of poor spraying of the liquid or if the

work is carried out on a sunny day, ammonium nitrate in a dosage of 20 kilograms per hectare causes scorching of the leaf tips. However, 4-6 weeks following the sprouting of new leaves, such scorching is no longer noticeable.

Thus, the treatment of winter wheat sowings with a mixture containing a herbicide, insecticide and nitrogen fertilizer destroys the weeds, protects the sowings against pests and diseases, promotes better rooting for the plants, releases personnel and equipment for other work during the tense spring period and raises the yields for this valuable grain crop by 4-7 quintals per hectare.

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## TILLING AND CROPPING TECHNOLOGY

UDC 76:633.11

### LEAF BEETLE DAMAGE TO WHEAT DISCUSSED

Moscow ZASHCHITA RASTENIY in Russian No 10, Oct 84 pp 22-23

/Article/ by M.A. Vitvitskiy, senior scientific worker at the Ukrainian Scientific Research Institute of Farming and N.M. Koval', senior agronomist-phytopathologist: "Shedding of Wheat Leaves and Damage by Leaf Beetles"/

/Text/ In 1978 and 1982 the leaf beetle caused considerable damage to soft spring wheat varieties in the northern part of the Ukraine. This pest appears on spring wheat and barley during years marked by excessive precipitation during the spring and summer period and high relative humidity and it causes damage to sowings during the shooting phase and for a period of 20-30 days following heading. The leaves become dirty-white and subsequently become twisted and die off; the accumulation surface of the plants and the weight of the seed decrease and a reduction takes place in the yields.

The degree of damage inflicted upon wheat by the leaf beetle is dependent upon the shedding of the leaves, which adversely affects the behavior of an adult female during the laying of eggs. Moreover, no more than 10 percent of the eggs deposited on shed leaves develop into larvae (K. Ringlund, E. Everson, 1968).

Our studies have made it possible to clearly differentiate the damage inflicted upon varieties of soft spring wheat depending upon the shedding of the leaves. For example, during competitive strain testing, the varieties Rannyaya 73, Lyatetsens 491, Artemovka, Kollektivnaya, Saratovskaya 29, Saratovskaya 38, Saratovskaya 210 and their hybrids, all having well expressed shedding, generally did not suffer damage caused by the leaf beetle or the degree of damage to the leaves did not exceed 1-2 percent. At the same time, in the case of the Leningradka, Belorusskaya 12 and Mironovskaya yarovaya spring wheats, which are characterized by a weak degree of leaf shedding, 25-30 percent of the leaf surface was damaged.

The majority of the winter wheat varieties have leaves which do not shed and thus the non-shedding varieties of spring wheat obtained from crossings with it are also unstable with regard to the pest.

Since the leaf-shedding characteristic in wheat is dominant and has a multiple-gene or double-gene type of succession, when crossing shedding and non-shedding varieties in hybrids of 2-5 generations, it is possible to single out the



required lines according to this characteristic. Thus, when creating Rannyaya 73 spring wheat (crossing of the non-shedding Brazilian Fronteyra variety with the shedding Kollektivnaya variety), we culled out all of the non-shedding lines in a plant breeding and control nursery (they were damaged by the leaf beetle and Swedish fly and this lowered the grain yield by 10-20 percent). From this crossing combination, we singled out the Line 193, which has a well expressed shedding characteristic. It was turned over for state testing under the name Rannyaya 73. It was regionalized in Kiev Oblast in 1978.

At the present time, in connection with the crossing of winter wheat and semi-dwarf and dwarf varieties of non-shedding spring wheat in the plant breeding programs and in addition to the yields and other economically valuable characteristics, breeding should ideally be carried out for the leaf shedding characteristic, which raises the resistance against the leaf beetle and Swedish fly and hence the productivity of the plants.

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## TILLING AND CROPPING TECHNOLOGY

UDC 632.4

### MEASURES FOR COMBATING ROOT ROT IN THE UKRAINE

Moscow ZASHCHITA RASTENIY in Russian No 1, Jan 85 p 38

/Article by V.F. Peresypkin, corresponding member of the All-Union Academy of Agricultural Sciences imeni V.I. Lenin and V.N. Pidoplichko, senior scientific worker at UkrNIIZR: "Combating Root Rot in the Ukraine"/

/Text/ Root rot in the Ukraine causes damage to many cereal grain crops and especially to winter wheat. The more widespread forms of root rot are fusariosis-cercosporosis and cercosporosis, ophio-disease rot is encountered in centers of infection and helminthosporiosis rot is often encountered in the eastern oblasts of the republic. The threshold for damage caused by the fusariosis and helminthosporiosis forms -- 20 percent damaged plants and for cercosporosis and ophio-disease rot -- 15 percent.

Based upon experimental data, a complex of measures has been developed by the scientific research institutes for combating root rot, including the use of good predecessor crop arrangements, optimum soil cultivation methods, sowing periods and seed sowing norms, the application of definite types of fertilizer, the use of chemical means of protection and the introduction of regionalized varieties which are relatively resistant to these diseases.

Among the agrotechnical methods, a great amount of attention is being given to selecting the best predecessor crop arrangements. In the Ukraine this includes the use of pulse crops and fallow. The damage caused by root rot decreases following clover, alfalfa, sainfoin, pulse-cereal mixtures and corn harvested during the phase of milky or milky-wax ripeness. But during some dry years, when the plant residues have not been removed completely from the fields, the damage inflicted upon wheat following corn may increase. Rape plays a positive role (mainly in the western oblasts of the Ukraine) in sanitizing the soil against the pathogens of root rot. It has been established that this crop, as a predecessor crop for winter wheat, is especially effective for combating the cercosporosis form of the disease.

Crop rotation plans in the Ukraine include considerable quantities of grain crops (from 30 to 60 percent) and thus winter wheat is often grown following stubble field predecessor arrangements. This leads to the accumulation in the soil of pathogenic organisms -- the causative agents of root rot and other diseases and it intensifies damage to the plants. Under such conditions, other effective methods for suppressing the pathogens must be found.

The development of root rot can be limited by selecting an optimum soil cultivation method and applying the required forms and dosages of mineral fertilizer in conformity with the specific conditions found in each soil-climatic zone. Thus the intensity of root rot development in the steppe zone (Zaporozhye Oblast) decreased by 18-39.8 percent when 20 tons of farmyard manure per hectare were applied for a predecessor crop arrangement and  $N_{60}P_{90}$  for bare and occupied fallow or merely nitrogen-phosphorus fertilizer ( $N_{60}P_{60}$ ) for corn for silage. In Donetsk Oblast, nitrogen top dressings ( $N_{30}$ ) were effective against a background of  $N_{30}P_{90}K_{90}$  and also organic fertilizers: the number of damaged plants decreased by a factor of 2.4 and the development of the disease -- by a factor of 2.6

In the forest-steppe zone (Cherkassy Oblast), a nitrogen and phosphorus ( $N_{30}P_{30}$ ) top dressing applied to winter wheat against a background of  $N_{50}P_{50}K_{50}$  for peas promoted a reduction in plant damage caused by root rot during the tillering phase by a factor of 1.3-1.6.

On the right bank of the forest-steppe region, a reduction was noted in the development of the disease when grain crops were grown following a vetch-oats mixture for green feed, an application of  $N_{120}P_{120}K_{120}$  and plowing carried out during years marked by an adequate amount of precipitation or only shallow plowing during dry years. It is recommended that use be made of the same doses of fertilizer and soil cultivation methods when wheat is repeatedly grown following wheat.

In the western forest-steppe zone, deep plowing is effective only following peas and clover (to 28-30 centimeters), corn for silage (to 25-27 centimeters) and conventional plowing with preliminary loosening of the soil following peas and corn for silage (to 20-22 centimeters) and following clover (to 23-25 centimeters).

In the southern and southeastern arid regions of the Ukraine, surface tilling is employed in addition to plowing; this makes it possible to retain the moisture in the soil and thus weaken the development of the disease. Data is available which indicates that during years marked by insufficient precipitation during the pre-sowing and sowing periods, with sweep cultivation of the soil being carried out, the degree of damage inflicted upon the plants is less by a factor of 1.6 than that which occurs when mouldboard plowing is employed.

The depth of the principal soil cultivation is also dependent upon the zone's soil-climatic conditions. In the forest-steppe zone, when plowing is carried out to a depth of 25-27 centimeters, root rot spreads more intensively than when plowing is conducted to a depth of 15-16 centimeters; in the western forest-steppe region, an increase in the plowing depth to 30 centimeters intensifies the damage caused by root rot, since here the upper fertile layer of soil becomes mixed with the lower and less cultivated layer. The optimum plowing depth -- 20 centimeters with an arable layer depth of 15 centimeters and an application of  $N_{60}P_{60}K_{60}$ . Under irrigation conditions, the least amount of damage caused by root rot is observed when the soil is tilled to 18-20 and 28-30 centimeters.

For the purpose of obtaining healthy seedlings, great importance is attached to carrying out the sowing work during the best periods. Wheat is damaged to a greater degree by root rot when the sowing is carried out very early. The best sowing periods vary for each soil-climatic zone: for the forest-steppe zone -- 1-10 September, for the steppe zone -- 10-25 September. Attention must also be given to the seed sowing norm. During the early stages of plant development, the density of a stand does not exert any substantial effect upon the development of fusariosis rot, but during the heading period when quite often there is an extensive spread of cercosporosis rot, the plants become infected to a greater degree in crowded sowings. Hence a moderate sowing norm (4.5 million grains per hectare) is preferred).

One measure for combating root rot and other diseases -- growing varieties which are immune to them. Such varieties as Mironovskaya 808, Mironovskaya 25, Polesskaya 70, Il'ichevka, Kiyanka and Mironovskaya improved are relatively resistant to fusariosis root rot. Compared to other varieties, Lyutestsens 6538, Mironovskaya 25, Karibo and Polesskaya 70 sustain less damage caused by cercosporosis root rot.

In addition to agrotechnical measures, the system of measures for combating root rot also includes the chemical disinfection of seed. The treatment of seed using granozan, TMTD /tetramethylthiuram disulfide/, hexachlorobenzene and some other preparations limits the development of fusariosis root rot but is ineffective against cercosporosis. In tests carried out in the forest-steppe zone, the development of cercosporosis root rot was restrained by treating the seed with preparations from the benzimidazole group (bavistine, fundazole) and also vitatiuram -- the damage to winter wheat decreased by a factor of 1.5-2 compared to control (TMTD). In the western forest-steppe zone, fine results were obtained from tests carried out with fundazole, pentachloronitrobenzene, BMK mixture and polykarbatsin, which were more effective than granozan by a factor of 6-14 and which provided complete protection for the seedlings against cercosporosis rot. According to data supplied by a number of researchers, a reduction took place in root rot damage when joint use was made of disinfectants and the growth regulator (TUR).

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## FORESTRY AND TIMBER

### BELORUSSIAN TIMBER LOSS IN RECLAIMED AREAS DISCUSSED

Moscow LESNAYA PROMYSHLENNOST' in Russian 12 Jan 85 p 2

[Article by Ye. Pushkin, Belorussian SSR: "Golden Bonfires/Hundreds of Thousands of Cubic Meters of Wood Suitable for Use Destroyed Each Year in Belorussian Reclamation Objects"]

[Text] The machine removed the brushwood and placed it in rolls. The collector-loader loaded wood and brushwood into the vehicle body and moved the raw material to the shopping facilities. Here the wood chips that are produced can be used to make wood-fiber sheets, as test examinations have shown.

This picture could have been observed at the Kamenka Reclamation Object, Bobruyskiy Rayon, 4 years ago. This was an example of a business-like attitude toward raw materials, even toward those of low quality. Industrial tests were carried out with equipment and machine systems for removing brushwood and shrubbery that is subsequently used. It was thought that the wood mass that was looked upon as waste for a long time would now be put to use. But, alas...

We know that in Belorussia reclamation is carried out on a large scale. Each year thousands of hectares of new area are given over for agricultural turnover. A little over 10 years ago a strict order was instituted for removing timber and for further utilizing it. But in actuality everything turns out different. Raw timber collected from drained sections rots in large piles or is burned in bonfires. In Belorussia about 1 million cubic meters of such wood is formed every year. No fewer than 600,000 cubic meters are economically suitable for industrial use--for the output of no fewer than 355,000 compact cubic meters of commercial planks.

Life itself established the task of developing a technology and of organizing the production of sheets from low-quality wood. BSSR Gosplan, republic ministries of the timber and wood processing industry, reclamation and water management, and the Belorussian Technological Institute imeni S. M. Kirov have been deemed responsible for carrying out this task.

At one of the BSSR Gosplan meetings representatives of these organizations confirmed the work program on industrial testing of such technology in reclamation objects. A practical solution to the problem has been assigned to the technological institute, with help being rendered by the ministry of reclamation



and water management, the Bobruyskdrev [Bobruysk Timber] Association, the Bobruyskgidrolizprom [Bobruysk Hydrolysis Industry] Association, and the Osipovichskiy Cardboard-Roofing Material Plant of the BSSR Ministry of Building Materials.

Our newspaper wrote on 27 June 1981 in an article entitled, "While the Bonfires Burn...", about the difficulty with which this program was carried out, about the not very enthusiastic attempt to implement it as soon as possible and about the lack of desire on the part of the republic's ministry of reclamation and water management to take on the responsibility of introducing innovations. Three years have passed since the article was published. What is the situation today?

"The program has been completed and accepted by all commissions," says A. P. Matveyko, scientific worker in charge of the subject and director of the Department of the Technology of Timber Procurement of the BTI [Office of Technical Information] imeni S. M. Kirov. "The annual economic effect of sales from the developed sheet-production technology would equal 4-5 million rubles. I say "would" because things did not move past the elaboration of the subject. As before, wood continues to rot and bonfires continue to burn."

Yes, the scientist is correct--the goods continue to perish as before. Here, for example, is what the director of the Department on the Care of Forests and on Forest Use of the BSSR Minleskhov [Ministry of the Timber Industry], V. D. Kislyakov, told us.

In 1983 in the Polotskiy Timber Industry Enterprise an area of 112 hectares, 110 of which were covered with timber, was allocated for the removal of peat dust. The supply of various types of wood there equalled approximately 10,000 cubic meters. The wood did not suit timber procurers. In such cases the oblast executive committee determines the consumer. In Vitebsk Oblast no such consumer was found. Then in violation of existing laws one was found in the Ukraine. It is obvious that there is no advantage to shipping all the timber a distance of over 100 versts, so only the best was selected. The rest was destined for destruction.

What is the problem? After all, 3 years ago I saw a sample of wood-fiber board made from DKR (wood-shrub vegetation) at a plant in Bobruysk. Here is the report characterizing this board. It was signed by representatives of the institute and of Bobruyskdrev. The document attests that in principle it is possible to produce DVP [Wood fiber slabs] from chips made of wood-shrub vegetation. "In principle" means in comparison to Bobruysk slabs, which correspond to the best samples. The indicators for DKR products do not differ that radically from those of Bobruysk products. Thus, the limits for bending strength of Bobruysk slabs is 450, for DKR slabs--380; for water absorption--26.5 and 28.6 respectively; for swelling--16 and 18.7 respectively; for moisture--4 and 6.1; and for compactness--the same. The slabs corresponded fully to the requirements made by GOST with regard to the T-350 brand and were not inferior to the DVP of various plants that used full-value raw materials.

Thus, wood processors have tested the raw material. But even they carried out experiments only with chips made only from shrub vegetation and demonstrated

no interest in seeing what would happen if they added regular types of wood to this raw material. Workers in Bobruyskgidrolizprom [Bobruysk Hydrolysis Industry Association] simply rejected the chips, citing difficulties in storing them. Let us remember the assurance 3 years ago given by Ch. Yankovskoy, senior engineer of Bobruyskgidrolizprom, that DKR chips are suitable for hydrolysis. According to confirmations by specialists, it could also be used for the production of DSP. But in essence, after having given the "pro's" no one has further approached the question from a state position.

Let us hear the opinion of specialists on this subject.

V. I. Lezhen', Deputy Minister of the BSSR Ministry of the Timber and Paper Processing Industry: "We are not saying that slabs made from DKR are not needed. We just don't know where to use them. An experiment on producing DVP's carried out at one time in Bobruysk ended with this problem. No one in production tried out DKR chips mixed with regular chips; there has been no testing of technology related to the production of wood fiber slabs and to hydrolysis. I think that DKR chips would be well suited to hydrolysis production to make feed yeasts. They could replace thousands of cubic meters of quality wood now used by the hydrolysis industry. But another problem now is that no one produces the chips that we are talking about. The institute has just developed the technology. But no one has given us an answer as to where to utilize this technology. We producers have no opportunity to be involved in experiments. This means that science has not worked things out to the end.

G. I. Zdorovtsev, Director of the Department of Timber, Paper and Wood Processing Industry of BSSR Gosplan: "The problem of utilizing wood-shrub vegetation is a national one. We had counted on solving it for ourselves here, but as you can see, this has not happened yet. The problem is that the subject has been elaborated but that there are no technical means to implement production yet. We thought that DKR chips would be produced by the ministry of land reclamation and water management, but the ministry has categorically rejected this idea."

Why are reclamation workers so stubbornly rejecting the production of chips? I ask this question of A. Ya. Delyatnik, Director of the Department for Introducing the Achievements of Science and Progressive Experience of the BSSR Ministry of Water Resources.

"Yes, we participated in the experiment 3 years ago at the Kamenka Object," says Anton Yakovlevich. "At that time we found imperfections in technology, a lack of balance in machines in terms of productivity, and a large proportion of manual labor. We have heard that now the technology has been improved and that the subject is closed. But no one has informed us of this. And after all, it's not up to us, the reclamation workers, is it? In this case BSSR Gosplan must decide what to do next."

We have come full circle. But allow me to quote from the response of the Central Committee of the Belorussian CP to the article, "While the Bonfires Burn..."

"It has been established," it says, "that the facts presented in the article concerning the slow solution in the republic of the problem of utilizing wood-shrub vegetation removed at reclamation sites basically correspond to reality. At the present time the Belorussian Technological Institute has proposed a technology for utilizing DKR. This technology has been tested under production conditions; it meets the requirements for preserving the fertile layer of soil at reclamation sites and also enables us to produce industrial-grade chips..."

This document again emphasizes who has the responsibility for carrying out the work: "The Belorussian Technological Institute was given the assignment in 1981 to complete the development of a comprehensive technological information concerning wood-shrub vegetation from reclamation sites for the production of industrial-grade chips and to carry out tests on this technology under production-testing conditions together with organizations of the BSSR Ministry of Reclamation and Water Management. The BSSR Ministry of the Timber and Wood Processing Industry, the BSSR Ministry of the Building Materials' Industry and the Bobruyskgidrolizprom Association have been given the task of implementing industrial testing on the use of industrial chips and shrub vegetation from reclamation objects in the production of wood boards, roofing felt and hydrolysis-furfural production."

Everything is precise and clear. Then why is it that 3 years later the bonfires continue to burn as before? Why do forestry workers, wood processing workers and microbiologists--in other words, everyone who has direct involvement in the use of natural riches--look at this with complacency?

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